THE OIL WEEKLY

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The Oil Man's Calendar

OCT. 18	National Stripper Well Association and Oklahoma Stripper Well Association, Annual Meeting, Tulsa, Oklahoma.
19–21	Independent Petroleum Association of America, Tulsa, Oklahoma.
20–21	American Institute of Mining & Metallurgical Engineers, Petroleum Division and Industrial Minerals Division, Los Angeles, California.
26	National Petroleum Association, Department of Fire and Accident Prevention, Olean, New York.
28	Western Petroleum Refiners Association, Shreveport, Louisiana.
27–29	Annual Convention, Texas Division, Mid-Continent Oil & Gas Assn., San Antonio, Texas.
NOV. 3–4	American Association of Petroleum Geologists, Pacific Section, Los Angeles, California.
4	Mid-Continent Oil & Gas Association, Oklahoma-Kansas Division, Tulsa, Oklahoma.
14–18	American Petroleum Institute, (Annual), Stevens Hotel, Chicago.
DEC.	Mid-Continent Oil & Gas Assn., Standing Tax Committees, Dallas, Texas.
7	Oil & Gas Association of Michigan, Mt. Pleasant, Michigan.
10	West-Central Texas Oil & Gas Association, Abilene, Texas.

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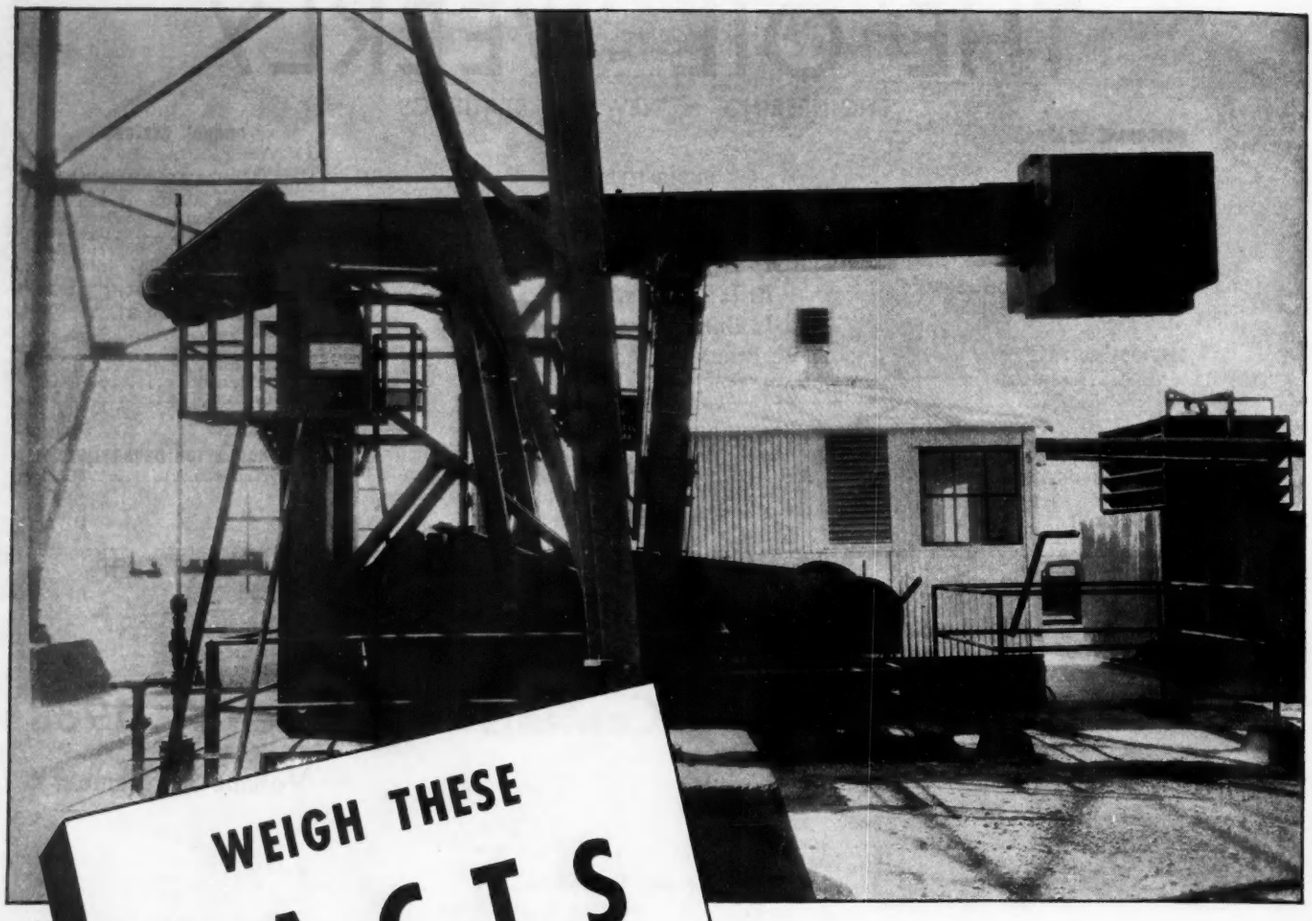

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Price Cuts and Prorations

By RAY L. DUDLEY, Publisher

ALTHOUGH the threat of a price cut on crude has been on the horizon for several weeks, and a great many people discussed it before it finally arrived, the actual cut itself has precipitated discussions and suggestions of such bitter nature as we have not heard in several years.

Most independent operators with whom we have talked have said frankly that with crude stocks down to a 16-year low, and with gasoline stocks not up alarmingly, they could see no reason for the cuts.

And out of this doubt as to the reasons behind the cuts have come suggestions for drastic action which could easily destroy such fruits of proration as the industry may have had.

Unquestionably, there are many reasons which may be named as being responsible for the price cuts which have swept over the country. All may have played some part in the thinking which dictated them.

Illinois Important Factor

Eastern price cuts seemed to have been caused by a situation in Illinois which gives no encouragement of improvement. Illinois is putting 85,000 barrels per day of desirable crude on the market whereas a year ago Illinois produced only 25,000 barrels daily. Purchases of some Eastern States crudes were affected because the buyers of that crude could get Illinois oil at a less price.

For some time the Eastern and Ohio area gasoline market has been soft. Standard of Ohio has maintained for a considerable period that it could not make money on refined products and pay the crude prices it has been paying. Infiltration of Arkansas and Louisiana gasoline at weak prices into the Standard of Ohio's territory is given as the reason for bringing to a head a situation which led Standard of Ohio to cut the price of the crude it was buying in Illinois. Other companies followed suit.

This put Oklahoma and Kansas crude at a disadvantage, which in turn is given as the reason for the price cuts in those two states, and the second downward re-adjustment in Illinois price met the new price quoted on upper Mid-Continent crude. Whether or not this proposition of a dog chasing his tail in these areas will continue is not certain, but unless other factors enter into the situation, it would appear that most of those concerned would be glad to call it to a halt.

Unquestionably, a chaotic crude oil market in Illinois would result in the entry into the market of distress gasoline, which would further complicate matters; and it doesn't seem good sense to forget that in the final analysis, oil companies are trying to make a profit on their operations.

Crude Sold at Cut Rates

For some time there has been complaint that not only was Louisiana permitting allowables which were out of proportion to allowables in other states, but that as a result of this situation, a great deal of Louisiana crude actually was selling at less than the posted price.

Also it is a rather well known fact that the posted price on considerable Louisiana crude has been lower than the posted price of comparable crudes produced in Texas and meeting Louisiana oil in competition for market. Because, whether Louisiana oil is refined in Louisiana or out-of-state, the fact remains that a great deal of it is in competition with Texas produced products for ultimate market.

It is estimated that as much as 60,000 barrels of Louisiana crude and 24,000 barrels of Arkansas crude has been going to market at from 10 to 20 cents per barrel under the posted price of competitive Texas crudes, some of it under the Louisiana posted price.

These things have caused considerable comment, and the fear of their depressing effect on Texas crude oil prices has been discussed frequently.

Too, reports are current that considerable Texas crude, and a small amount of Southern Oklahoma and Kansas crude has been going at less than posted price. It is estimated that approximately 22,000 barrels of Texas crude has been selling below posted price and a total of about 5000 barrels of Southern Oklahoma and Kansas crudes.

Southern Louisiana crude and much Texas crude may be considered as an identical supply, insofar as market and price are concerned; and price cuts in Texas are reported to have been made to equalize Texas prices with the competitive prices of Louisiana crude.

Whether or not the reduction in the posted price of Louisiana crude, followed by a reduction in the Texas price, has cured the underselling in Louisiana is not known as yet. Probably it will continue unless the proration situation in Louisiana is changed; and should it continue, the present price cuts will not have helped the situation at all.

The fact that Mexican oil has been coming to Gulf Coast refineries at a delivered price of around 70

cents per barrel hasn't helped any. On the contrary, although the imports have not been high (Mexican imports to Texas in September were in excess of 400,000 barrels), the amounts have been sufficient to make a sore spot.

Crude Storage Enters Situation

With reference to the fact that we now have a 16 year low on crude oil in storage, there is probably still another bullish factor to be considered. It would be our guess that the withdrawals have been on preferred grades. Definite information as to who has made the heaviest withdrawals of crude and the greatest additions to refined stocks is difficult to obtain. That those who have withdrawn crude and added to gasoline stocks are identical might not be a bad guess.

But while we are touching on the subject of the various factors entering into the picture we should not forget the recent report of the United States Bureau of Mines on the storage situation.

It is well to remember that the Bureau, after its investigation, reached the conclusion that 200,000,000 to 250,000,000 barrels of crude oil was sufficient storage from an efficient operating standpoint. Crude stocks at latest reports were 280,000,000 barrels. When past stocks are considered (the high was in 1929 with more than 400,000,000 barrels) one has the choice of either wondering how in the name of good economics crude prices were as high as they were, or of complimenting the industry for energetically working in the dark toward a goal which wasn't definitely known until the Bureau's figures were released.

This much is a certainty—the Bureau of Mines investigation proved that the losses on steel storage are not as great as had been anticipated. In fact they are very small. And with that in mind purchasers who have empty storage might find their courage lifted when the price dropped to a point where it represented a bargain. From one standpoint there is some consolation in that!

Other factors which no doubt enter into the present situation is the question of financing. Money isn't hard to get but uncertainty may make buyers reluctant to borrow money to store oil, be it crude or refined. Of course, money to store low priced oil would be not difficult to get and low price might offset uncertainty.

Lifting Proration Won't Help

Independent operators seem to feel that proration has failed in at least one important function. While the state regulatory bodies have never had a legal basis for the consideration of price in their proration deliberations—market demand and conservation being their only legal basis—operators have accepted proration because they felt that one of its results, from their standpoint, would be a stabilized market.

"We have paid proration as a price for a stabilized market, and now we aren't getting what we paid for," an independent said to us during the week. Others have said substantially the same thing. In fact, upon considering the long time pay-out under proration, in connection with a greater application of overhead to a barrel of oil produced, and an ultimately higher advalorem tax cost, some operators are saying that they favor the abolition of market demand consideration in proration and the leaving of strict conservation as the sole consideration.

That such a procedure would immediately throw on to the market more oil than could be absorbed at a "let live" price, they admit. Some seem willing to take the chance. To us it seems that sober thinking should precede such an action. It would be tantamount to throwing away control from every standpoint except that of conservation and the abolition of the Interstate Compact and such benefits as may have accrued from it. There are those who offer what appear to be sound arguments in favor of taking this as the time to cure a situation which certainly cannot continue unless regulation is placed on drilling as well as on production. But the price paid for the clean-up might well be the ruin of many companies.

The lifting of the Saturday and Sunday shut down in Texas very probably would be followed by further price cuts. Some say, however, that a 7-day operation would soon solve itself—that in some areas a full 7-day operation would mean an early loss of flowing life, and the removal of the threat that "a barrel of oil which is stored in the ground and which can be produced by simply cracking a valve has the same depressing effect on the market as a barrel of oil in steel storage."

Proration under market demand was accepted by many as an emergency measure to cure a desperate illness of the industry. It was embraced by many who felt that if discoveries continued an underground reserve would be piled up which would be as dangerous to the market as an above-ground reserve. The only hope these people had was that a high rate of discovery could not continue and that demand might step in and help to prevent the ultimate ills which continued additions to flowing reserves might bring.

No one knows whether the high rate of discovery will continue. Maybe it will—maybe it won't. It has been unusually high during the past two years.

An upturn in industrial affairs seems likely. That might help a lot by increasing the market for refined products.

Summation

Summing the whole thing up, if we have not been misinformed as to the reasons of the price cuts—and we do not think we have been, it gets back to this:

Crude in Louisiana and Arkansas has been going in large quantities at less than posted prices elsewhere for competitive crude. This in turn has been caused by failure of proper proration regulations or enforcement thereof.

It would therefore seem wise not to abandon hastily something because the lack of it in other states has caused a bad situation, and any action which might be contemplated toward abandonment of market demand proration should not be undertaken lightly.

Drilling This Year Is Running About Same as in 1936

Crude oil price reductions likely will cause some curtailment of field work in coming months, but about 27,000 completions are indicated for 1938.

By L. J. LOGAN,
Associate Editor

ALTHOUGH recent crude price reductions threaten to cause some curtailment of drilling, the industry so far has continued to maintain field operations approximately the same as in 1936.

This year consequently may bring virtually a duplication of the drilling record of 1936, when approximately 27,000 wells were completed in the United States.

If the completions of 1938 should total about 27,000 wells, as now indicated, they would be 18 percent under those of 1937. However, 1937 drilling was exceptionally heavy, having approximated that of 1920, the most active year in the history of the industry.

September Results

As in the several preceding months, drilling proceeded in September along a seasonal trend that almost coincided with that of 1936.

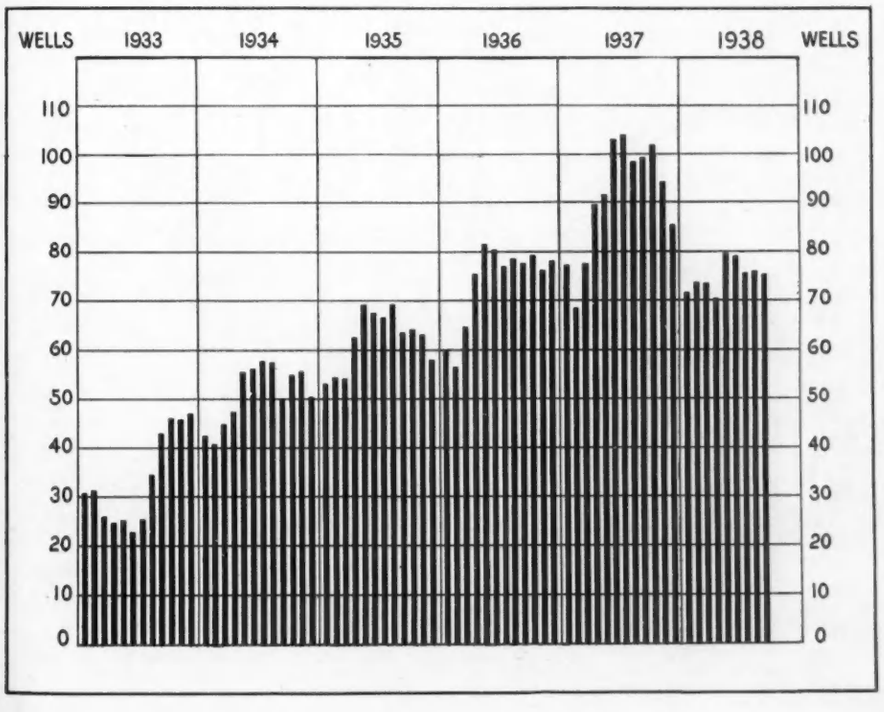
Well completions in the United States during September averaged 75.4 daily, having declined only fractionally from the August level. That average compared with 99.2 wells daily completed in September, 1937, and with 77.7 daily in September, 1936.

An accompanying table gives a comparison of September drilling this year with that in the preceding five years.

September of	Average Number of wells completed daily
1933	43.0
1934	50.0
1935	63.7
1936	77.7
1937	99.2
1938	75.4

Average Number of Wells Completed Daily in U. S.

(By Months, January, 1933 — September, 1938)



First Nine Months

In the first nine months of this year, 20,571 wells were completed in the United States. That was 16.2 percent less than the 24,542 completions in the corresponding period last year.

While the country as a whole showed that decrease, several states and districts have had more drilling this year than last year.

The most noteworthy increase over last year has been that in Illinois, where 1027 wells were completed in the first nine months of this year, compared with 179 in the

corresponding period last year.

The Illinois development also has spread into the adjoining states of Kentucky and Indiana, and both of those states consequently have likewise had more drilling this year than last year. Kentucky's drilling record of 1937 has been almost doubled this year, 564 wells having been completed in the first nine months this year, compared with 297 in the similar period last year. Indiana's completions similarly increased to 95 from 90.

Another outstanding increase in drilling has been that in Arkansas, where the 161 completions through September this year were nearly double the 87 last year.

Louisiana also is among the states showing more drilling for 1938 than for 1937, both the northern and southern sections having registered increases. The state as a whole had 13 percent more completions this year than last year for the first nine months. South Louisiana drilling was up 15 percent and that of North Louisiana was 11 percent higher.

Two districts of Texas also have had more drilling this year than last year. Because of the K-M-A deep pay development, North Texas had 11 percent more completions in the first nine months of 1938 than in the similar period of 1937. The Texas Gulf Coast is the other district of the state showing an increase, although it is running only slightly ahead of last year's record.

Mississippi also ranks among the exceptional states showing more drilling this year than last year, having had 12 completions through September this year as against 11 last year.

Declines in Drilling

States and districts not mentioned above have had less drilling this year than last year.

Noteworthy among the decreases have been those in the Eastern States, where development has been retarded by the repeated reductions in prices of Pennsylvania grade crude. New York, Pennsylvania, West Virginia, and Ohio have had from 25 to 50 percent less drilling this year than last year.

Because of its advantageous location in relation to consuming centers in the Middle West, Michigan has been comparatively active this year, having had only 4 percent fewer completions than last year.

The largest decreases in drilling in the Mid-Continent have been those in Kansas and Oklahoma, as those states have been affected particularly by the shifting of crude oil markets to the new, flush fields of Illinois. Kansas has had 35 percent fewer well completions this year than last year, and Oklahoma has experienced a 29 percent decline in drilling.

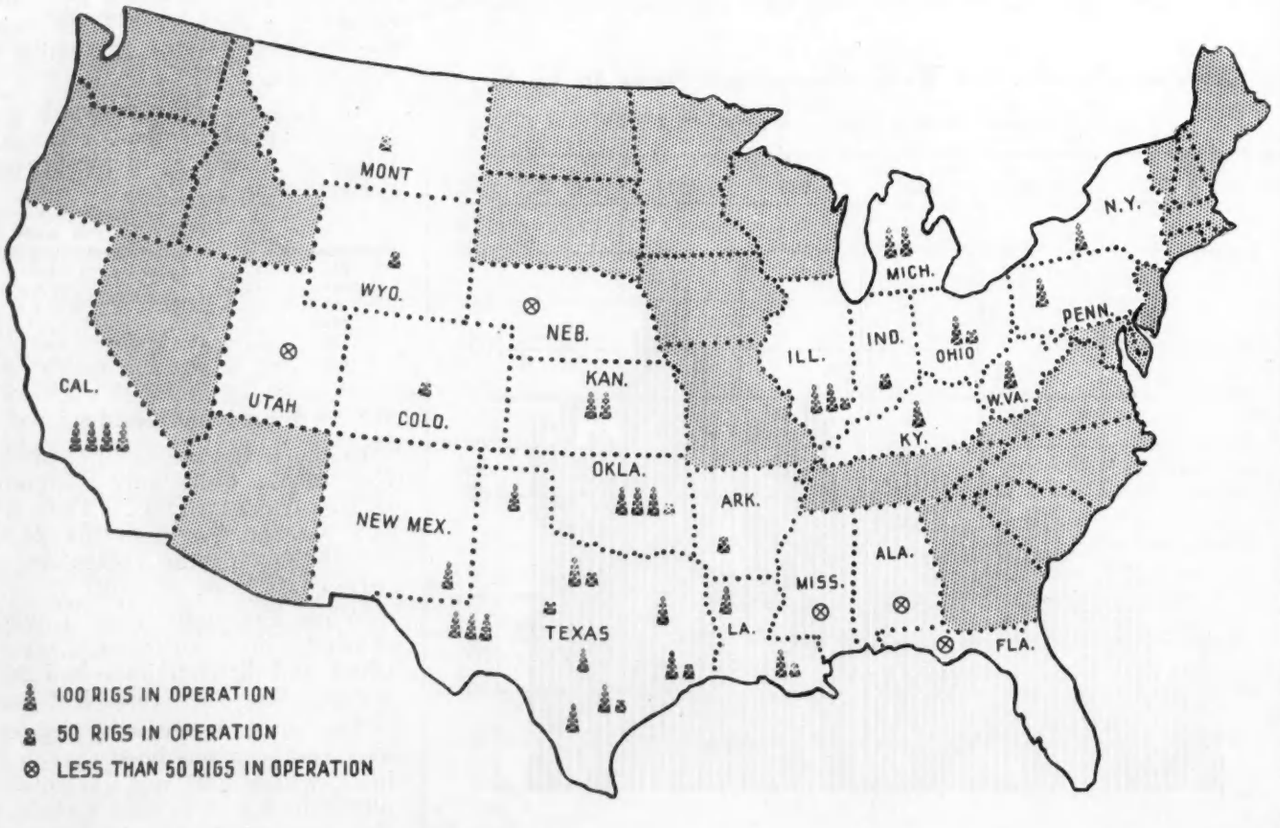
New Mexico activity also has contracted materially, having been 27 percent smaller this year than last year.

Texas as a whole has had 15 percent less drilling in 1938 than in 1937. The largest declines in the state have been those of 52 percent in Eastern Texas outside the East Texas field and 34 percent in the Laredo district of South Texas.

Drilling has been curtailed around 50 percent in Colorado and Montana, but Wyoming activity has been only 10 percent lower this year than last year.

California drilling has remained comparatively heavy. The state has had only 8 percent fewer completions this year than last year.

Rigs in Operation Decline 3.3 Percent in 30 Days



Rigs in Operation

Rigs in operation in the United States decreased 3.3 percent in September, having declined from 3869 on September 1 to 3742 on October 1.

These figures indicate that there may be some decrease of drilling activity in October, although in most years recently October has brought some expansion of field work.

Included in these figures on rigs in operation are wells drilling, rigging up, or temporarily shut down at drilling sites. The details of activity, by states and districts, are given in an accompanying table.

Although states and districts that showed declines in operations in September were in the majority, the areas that registered increases were numerous, having included: Illinois, Indiana, Kentucky, West Virginia, Colorado, Nebraska, New Mexico, Wyoming, Oklahoma, West Texas, and Eastern Texas outside the East Texas field.

The steady expansion of development in Illinois continued in September, as active rigs increased from 255 to 266. The latter figure included 193 operations in the new fields and 73 in the rest of the state.

Drilling Operations Decrease Slightly in September

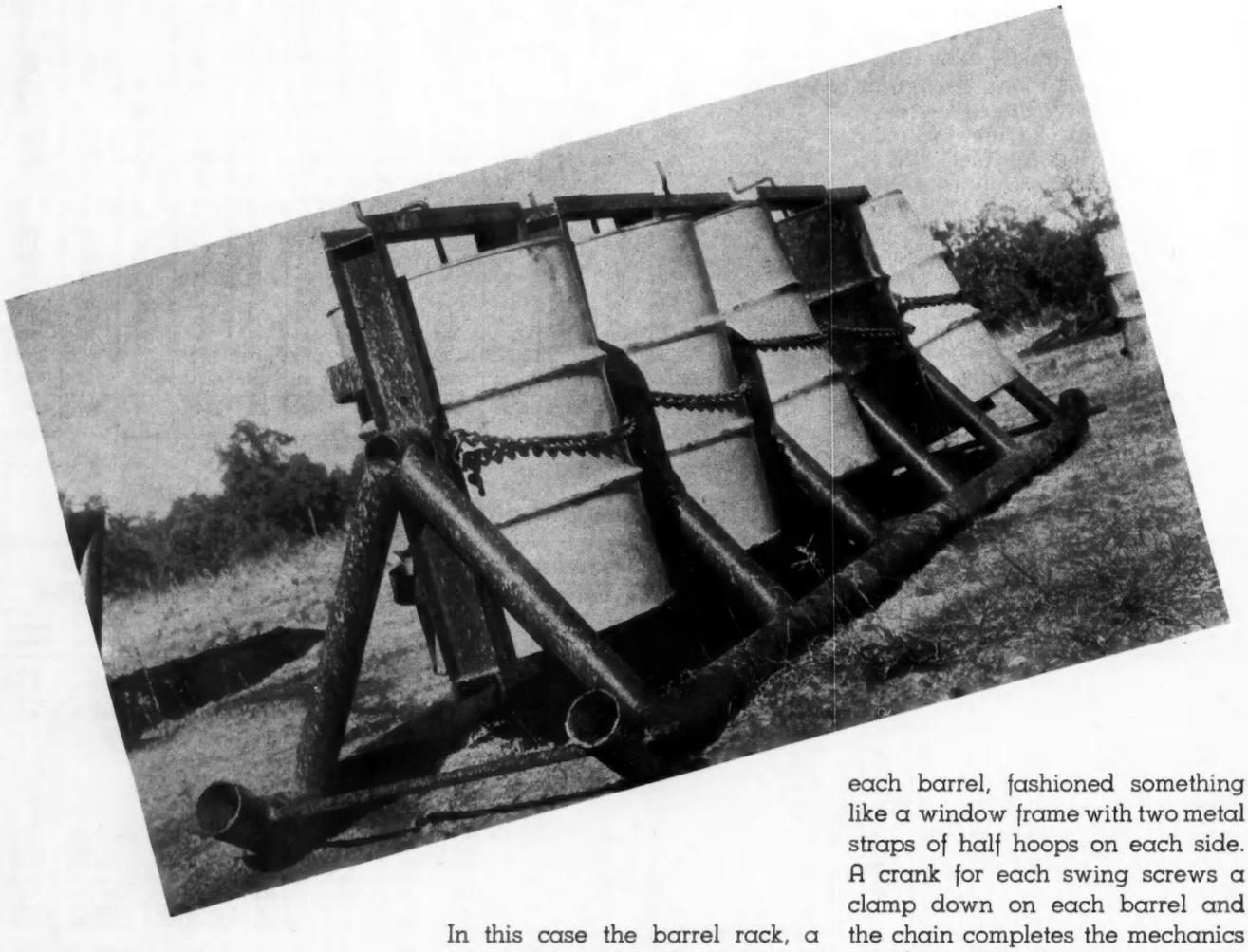
STATE OR DISTRICT	TOTAL RIGS IN OPERATION (Drilling, Rigs Up, Shut-down)					DETAILS OF OCTOBER 1, 1938, ACTIVITY					
						Rigs in Operation			Prelim. Activity		
	July 1, 1938	Aug. 1, 1938	Sept. 1, 1938	Oct. 1, 1938	Percent Change of Sept. 1 from Oct. 1	Drilling	Rigs Up	Shutdown	Derricks	Location	Total Operations
Arkansas	53	45	52	52	.....	39	3	10	2	2	56
California	302	367	381	376	− 1	266	63	47	14	25	415
Colorado	38	22	25	26	+ 4	14	3	9	...	2	28
Eastern States	787	809	845	863	+ 2	497	114	252	67	69	999
Illinois	209	237	255	266	+ 4	108	24	134	24	39	329
New Fields	136	174	190	193	+ 1	94	20	79	21	27	241
Rest of Illinois	73	63	65	73	+12	14	4	55	3	12	88
Indiana	36	30	34	52	+53	31	3	18	2	2	56
Kentucky	70	76	77	79	+ 2	45	14	20	19	14	112
New York	90	90	90	90	.....	36	32	22	...	...	90
Ohio	148	148	150	143	− 5	96	19	28	6	4	153
Pennsylvania	126	120	128	119	− 7	108	3	8	1	1	121
West Virginia	108	108	111	114	+ 3	73	19	22	15	9	138
Kansas	204	208	240	211	−12	177	18	16	28	13	252
Louisiana	210	242	239	213	−11	177	16	20	18	32	263
North Louisiana	91	100	103	89	−14	65	10	14	7	9	105
South Louisiana	119	142	136	124	− 9	112	6	6	11	23	158
Michigan	194	185	186	183	− 2	129	31	23	44	14	241
Montana	41	43	49	44	−10	23	1	20	1	2	47
Nebraska	4	3	3	4	+33	2	1	1	...	...	4
New Mexico	117	123	120	128	+ 7	90	7	31	5	7	140
Oklahoma	349	262	349	359	+ 3	234	30	95	41	27	420
Southeastern States	21	20	23	18	−22	4	3	11	3	2	23
Alabama	4	3	5	4	−20	.....	1	3	...	...	4
Florida	4	4	5	4	−20	.....	...	4	1	...	5
Georgia	...	...	...	...	...	...	...	...	...	...	...
Mississippi	13	13	13	10	−23	4	2	4	2	2	14
Texas	1,448	1,353	1,300	1,201	− 8	917	77	207	88	312	1,601
East Texas Field	64	52	51	45	−12	30	4	11	11	6	62
East Texas Border Counties	31	23	33	18	−45	14	...	4	2	2	22
Rest of East Texas	47	43	47	48	+ 2	26	6	16	3	4	55
North Texas	304	253	183	148	−19	119	5	24	9	53	210
South Texas	329	318	339	305	−10	231	29	45	16	91	412
Corpus Christi Area	163	155	165	143	−13	117	10	16	7	53	203
Laredo Area	77	87	91	82	−10	54	12	16	5	24	111
San Antonio Area	89	76	83	80	− 4	60	7	13	4	14	98
Texas Gulf Coast	157	136	150	143	− 5	129	9	5	23	56	222
Texas Panhandle	107	108	103	102	− 0.9	78	10	14	6	9	117
West Texas	326	333	308	318	+ 3	253	11	54	15	83	416
West Central Texas	83	85	86	74	− 9	37	3	34	3	8	85
Utah	6	3	3	3	.....	2	...	1	...	...	3
Wyoming	56	52	54	61	+13	31	6	24	3	2	66
Total United States	3,830	3,737	3,869	3,742	− 3.3	2,602	373	767	314	509	4,565

Drilling and Production Continue Lower Than Last Year

STATE OR DISTRICT	†SEPTEMBER, 1938 COMPLETIONS AND CRUDE OIL PRODUCTION						COMPLETIONS AND PRODUCTION IN FIRST NINE MONTHS, 1938 AND 1937									
							WELLS COMPLETED			DETAILS OF 1938 DRILLING				BARRELS PRODUCTION		
	Total Wells	Oil	Gas	Dry	Initial Production	Production for Sept.	1938: 9 Mo.	1937: 9 Mo.	Percent Change	Oil	Gas	Dry	Initial Production	1938: 9 Months	1937: 9 Months	Percent Change
Arkansas	15	12	....	3	12,443	1,729,250	161	87	+ 85	133	1	27	116,521	13,663,800	7,971,900	+71
California	109	94	1	14	54,136	20,047,400	1,009	1,103	− 8	815	8	186	751,379	189,542,600	173,705,500	+ 9
Colorado	.....	.....	.....	.....	.....	105,200	6	11	− 45	2	.....	4	510	1,064,050	1,174,350	− 9
*Eastern States	547	320	93	134	32,841	5,266,950	5,029	5,712	− 12	3,337	826	866	232,494	39,993,350	32,902,400	+21
Illinois	148	99	2	47	28,484	.....	1,027	179	+474	757	10	260	196,262	.....	.....	....
Indiana	17	8	5	4	651	.....	95	90	+ 5	26	23	46	1,392	.....	.....	....
Kentucky	76	36	5	35	2,289	.....	564	297	+ 90	288	98	178	23,494	.....	.....	....
*New York	46	44	1	1	161	.....	525	968	− 46	483	31	11	1,032	.....	.....	....
Ohio	89	30	34	25	839	.....	701	1,106	− 37	209	275	217	4,694	.....	.....	....
*Pennsylvania	114	93	9	12	164	.....	1,615	2,395	− 32	1,478	77	60	4,587	.....	.....	....
West Virginia	57	10	37	10	253	.....	502	677	− 26	96	312	94	1,033	.....	.....	....
Kansas	134	98	2	34	110,537	4,817,150	1,260	1,955	− 35	867	50	343	984,072	44,768,700	51,792,450	−14
Louisiana	88	45	9	34	19,247	7,983,950	810	717	+ 13	535	50	225	260,466	71,030,300	68,787,500	+ 3
North Louisiana	37	19	8	10	8,539	2,300,200	397	358	+ 11	298	38	61	155,977	21,592,450	21,743,300	− 0.7
South Louisiana	51	26	1	24	10,708	5,683,750	413	359	+ 15	237	12	164	104,489	49,437,850	47,044,200	+ 5
Michigan	101	58	....	43	23,377	1,562,050	673	702	− 4	399	14	260	92,442	14,215,650	11,257,650	+26
Montana	10	7	1	2	532	385,350	52	146	− 64	37	7	8	7,645	3,645,200	4,558,950	−20
New Mexico	38	31	2	5	11,051	3,179,900	381	520	− 27	327	12	42	179,492	28,115,350	29,350,450	− 4
North Dakota	1	.....	.....	1	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....
Oklahoma	167	108	6	53	57,711	13,419,700	1,614	2,283	− 29	1,014	109	491	251,386	129,822,200	171,394,500	−24
Southeastern States	.....	.....	.....	.....	.....	.....	16	13	+ 23	1	4	11	240	.....	.....	....
Alabama	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	1	.....	.....	.....	....
Florida	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	....
Georgia	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	....
Mississippi	.....	.....	.....	.....	.....	.....	12	11	+ 9	.....	3	9	.....	.....	.....	....
Tennessee	.....	.....	.....	.....	.....	.....	2	.....	.....	1	1	.....	240	.....	.....	....
Texas	893	673	19	201	727,071	37,128,650	9,485	11,214	− 15	7,190	264	2,031	10,618,555	354,555,050	382,469,200	− 7
East Texas Field	104	103	....	1	426,110	11,279,900	1,523	1,740	− 12	1,488	.....	35	7,394,305	114,328,250	126,065,650	− 9
Rest of East Texas	30	20	4	6	5,827	2,717,850	376	787	− 52	238	24	114	127,964	25,843,800	32,201,050	−20
North Texas	197	121	1	75	48,801	2,112,200	1,951	1,761	+ 11	1,358	15	578	683,041	19,723,400	19,360,350	+ 2
South Texas	204	144	3	57	61,496	6,451,150	2,042	2,749	− 26	1,302	95	645	538,976	61,071,100	63,554,050	− 4
Corpus Christi Area	86	70	1	15	48,652	.....	910	1,106	− 18	633	48	229	421,024	.....	.....	....
Laredo Area	74	53	2	19	11,769	.....	770	1,175	− 34	483	41	246	101,435	.....	.....	....
San Antonio Area	44	21	....	23	1,075	.....	362	468	− 23	186	6	170	16,516	.....	.....	....
Texas Gulf Coast	132	101	2	29	41,502	6,015,100	1,158	1,150	+ 0.7	901	30	227	378,860	54,512,600	55,491,200	− 2
Texas Panhandle	35	28	5	2	15,785	1,966,100	440	562	− 22	349	69	22	157,989	18,182,400	21,089,800	−14
West Texas	156	137	1	18	125,485	5,738,500	1,735	2,145	− 19	1,460	13	262	1,324,002	53,059,250	55,674,250	− 5
West Central Texas	35	19	3	13	2,065	847,850	260	320	− 19	94	18	148	13,148	7,833,800	9,032,850	−13
Utah	1	.....	.....	1	.....	.....	3	.....	.....	.....	1	2	.....	.....	.....	.....
Wyoming	8	6	....	2	397	1,692,250	71	79	− 10	42	12	17	19,971	14,419,850	14,476,000	− 0.5
Total United States	2,112	1,452	133	527	1,049,343	97,317,800	20,571	24,542	− 16.2	14,699	1,358	4,514	13,515,173	904,836,150	949,798,957	− 4.7

† September completions cover not the calendar month but the four weeks or 28 days, ended September 24.
* Figures for New York and Pennsylvania prior to June revised; completions include water-intake and pressure wells.

Putting The Skids Under It



In this case the barrel rack, a product of pipe, channel iron, metal straps and pieces of chain, all done to specifications in the welding shop.

There is a separate swing for each barrel, fashioned something like a window frame with two metal straps of half hoops on each side. A crank for each swing screws a clamp down on each barrel and the chain completes the mechanics of holding a barrel in place, so it can be tilted for pouring.

The barrel rack is the latest thing in auxiliary equipment around the rig driven by an internal combustion engine, where the need for light oil and lubricants is frequent.

Moving it to another location consists of hoisting one end, snaking onto the bed of truck and driving away, perhaps with several other pieces of skid equipped devices along side.

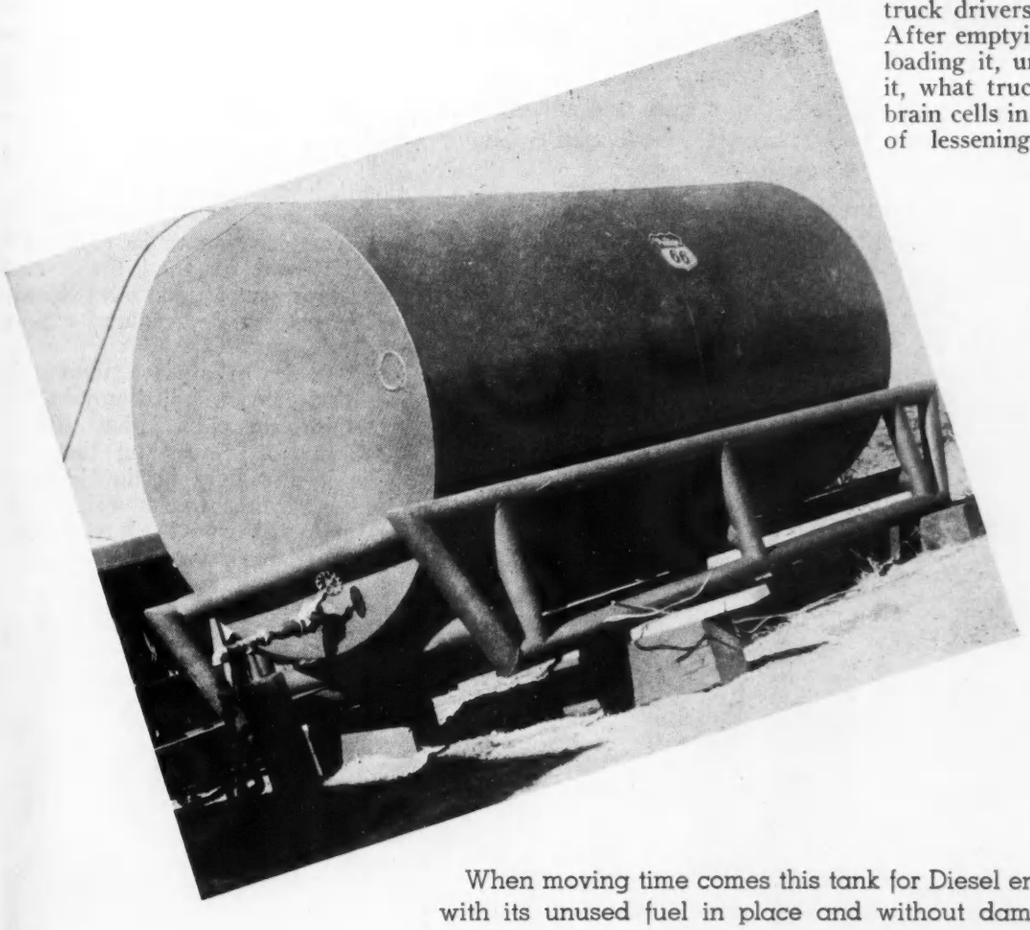
The problem of moving heavy, cumbersome equipment greatly facilitated in recent years . . .
The trend is to put everything on skids, which is a great time, effort and damage saver . . .

By GRADY TRIPLETT, Staff Writer

ALTHOUGH not restricted to the rig with internal combustion engine power, skids for the auxiliary equipment have their widest use with this type equipment. Its fuel must come from gasoline, Diesel engine oil or natural gas, and in either instance a tank, a manifold and a battery of barrels are essentials.

Skids are products of the ingenuity and skill of drilling crews, truck drivers and the welding crew. After emptying a Diesel engine tank, loading it, unloading it and refilling it, what truck driver would not set brain cells in motion to devise means of lessening the work, especially

[Continued next page]



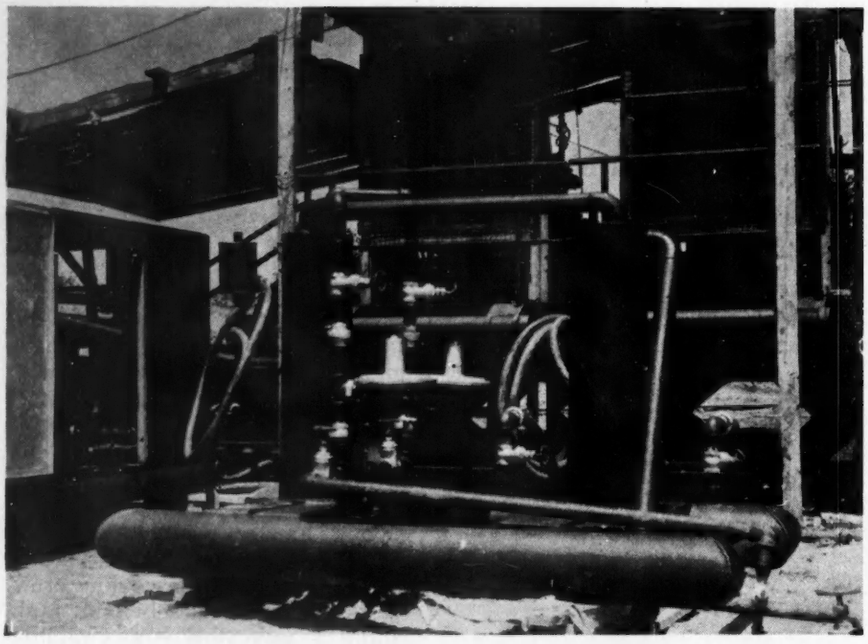
When moving time comes this tank for Diesel engine oil can be moved with its unused fuel in place and without damage to tank and connections.

The welded pipe cradle is made to fit the tank which is anchored to the frame. For moving the fuel delivery line is disconnected at the valve and plugged. Then a winch cable to the end cross member raises the assembly to the proper height to pull it onto the truck body.

Erection at the next location requires first sufficient timbers to elevate the truck to a level so the fuel pumps on the rig engines can get their supply steadily. Then the tank is dragged into position. Top of the tank is higher than the level of the fuel pumps.

The small line from the top downward provides fuel for the engine which drives the generator for rig lighting.

OIL WEEKLY staff photographs taken at rigs of Loffland Brothers Company in Ramsey field and Phillips Petroleum Company in St. Louis field, Oklahoma.



With natural gas for fuel, manifold, scrubbers and pressure control equipment are one device, whose two horizontal gas chambers have beveled ends to serve as skids as well as fuel supply.

The upright chambers are kept a third full of oil to serve as scrubbers as in this instance in the Ramsey field, Payne County, Oklahoma, natural gas comes from the field.

Reinforced rubber hose is used to convey the gas to the twin engine assembly for rig power. Other similar lines lead to the generating assembly at the left and the stand-by generating unit not in the picture.

[*Continued from preceding page*]

after an accident put a tank out of commission?

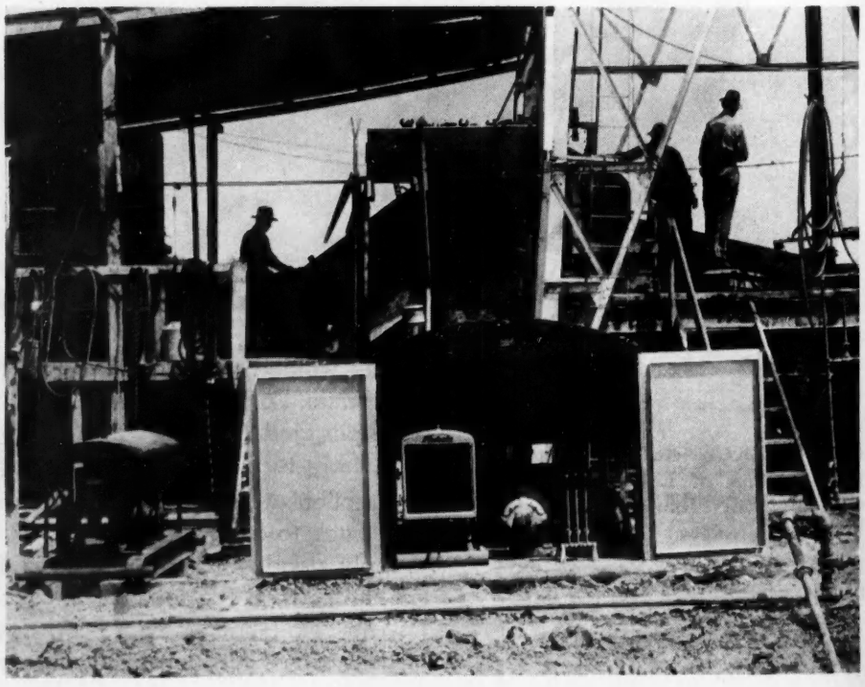
From such need the crew at the welding shop takes over to design and build. Skids are made from used pipe and I-beams. When finally the proper supports have been fashioned, the information gets around the field and from one field to another with the result that wherever a rotary rig is running, some of its equipment will be found on skids.

Or the manufacturer may have been first with skids under tool houses, tool boxes and generator assemblies. At any rate these units are coming from plants with skids a part of the design.

It all adds up to "moving in rig" with auxiliary power units, fuel supply units, tools, pipe and connections in their containers, and in addition to saving time and saving equipment, there is less muscle strain, since a truck equipped with winch and line can do a lot of lifting as well as hauling.

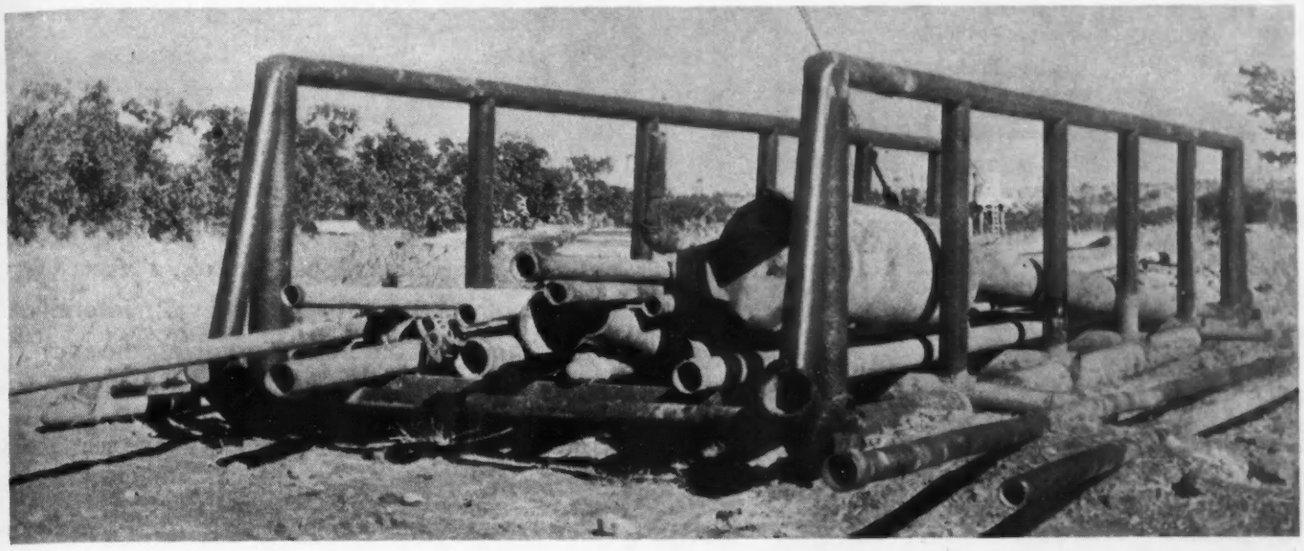
Today, even derricks are being mounted on skids (THE OIL WEEKLY, August 22, 1938), and moved intact from location to location. It is the day of skids, and these small items represent a great advancement in the necessarily frequent moving of derricks.

Oil field workers are among the world's foremost skilled movers. Put something on skids, give them a truck and a winch and they will move it anywhere in double quick time—regardless of its weight, unless state highway load regulations prevent transportation.

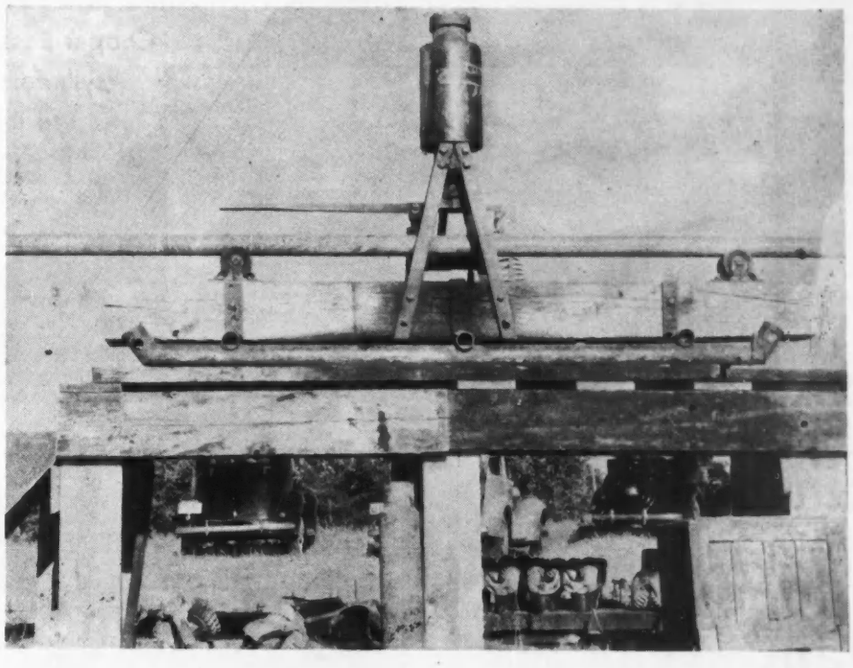


Housed and on skids are the generating plant and compressor unit, whose housing has the doors open, while the stand-by generating unit is at the left.

The large generating unit consists of gas engine, which through V-belts and clutch, drives both the electric generator and the air compressor.



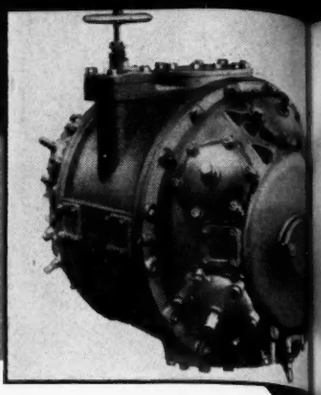
No beauty, but high in utility. The basket of pipe and connections is the crew's best friend when moving or setting up. All pipe and small connections are set along the side derrick floor and essential material taken until drilling starts, when the basket is skidded away.

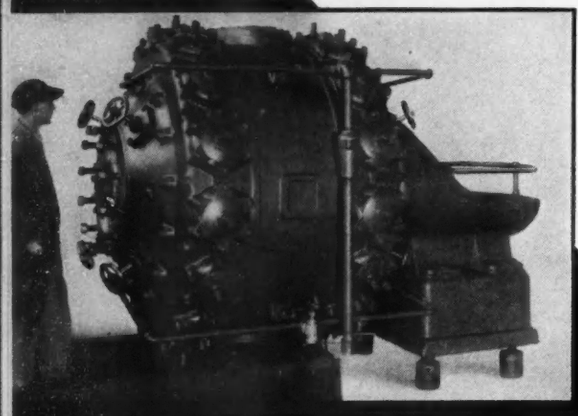


Even the hydraulic straightener for drill pipe has its skids.

Truck bodies must have an attachment, set at an angle with three or more rolling members, to take advantage of skids. Below is a tool box ready for its moving turn.

SURE... There's a Difference in Compressor Cylinders!

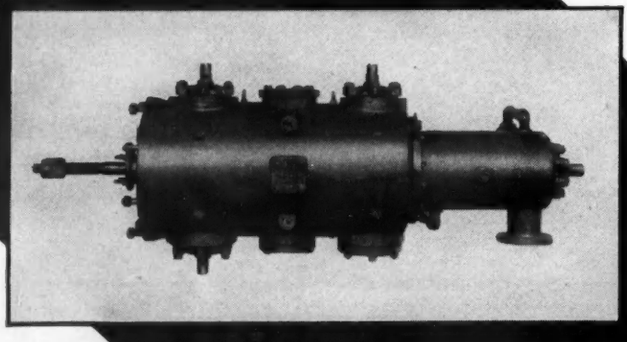


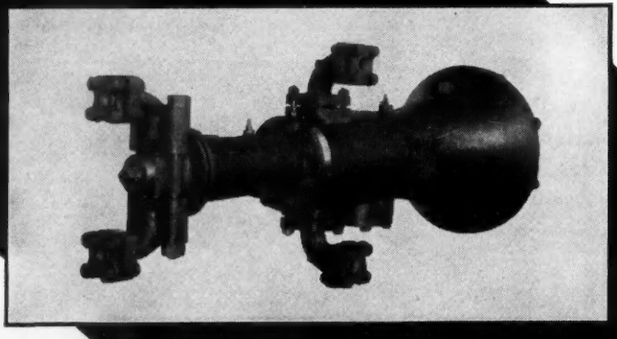


. . . and it's not just in size or shape. There's a vast difference in the strength and wearing qualities of materials that go into them. There's a difference in valve efficiency . . . and valve efficiency depends upon difference in design.

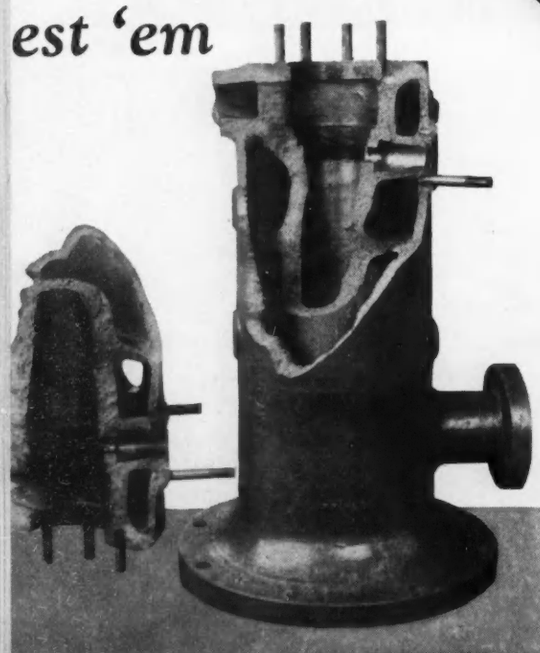
For low and medium pressures, Cooper-Bessemer compressor cylinders are made of Meehanite Metal . . . for high pressures special analysis steel, either cast or forged. If you are interested in sizes and types, a few of the hundreds of Cooper-Bessemer-built cylinders are shown here... cylinders for pressures varying from a high vacuum to thousands of pounds.

Our engineers, modern foundries and machine shops are ready to serve you . . . Specify Cooper-Bessemer Compressor Cylinders and know the difference!

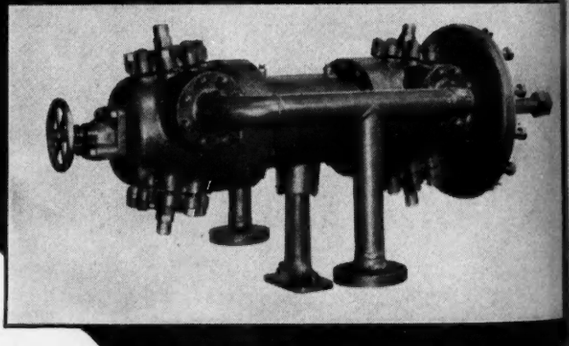


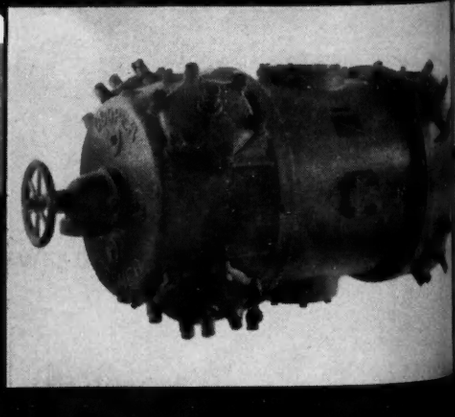


. . and here's ne way we est 'em



A cylinder of Meehanite Metal, designed for 1500 pounds working pressure. Subjected to hydrostatic pressure it ruptured at 10,000 pounds. Note the uniform metal structure of both thick and thin sections.





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OBSERVATION OF

Pumping Problems And Equipment

IN THE EAST TEXAS FIELD

By ROBERT M. BASS, Sinclair Prairie Oil Company

THE question of pumping wells or obtaining oil from wells by means other than natural flow is ever before us who are most intimately associated with the East Texas field because of several reasons. First—because there are over 25,000 wells now in the field. Of that 25,000 wells, there are less than 6000 now producing by means other than natural flow which leaves some 19,000 yet to equip with artificial means of production. Second—because new methods of producing, new equipment being introduced and an ever increasing amount of data being obtained regarding the field pertaining to amount of fluid to handle, length of time wells will produce after they begin making water, or whether production can be obtained by means other than pumping, etc. This makes it almost necessary for the producer who is fortunate enough to have no wells pumping at this time to be on the alert as to the methods of producing oil in East Texas after the natural flow ceases.

George L. Nye and E. B. Miller, Jr., prepared and delivered before the East Texas Chapter of the American Petroleum Institute in May, 1937, a paper entitled "The Present and Future of Pumping in the East Texas Field." In this paper Nye and Miller stated that the physical characteristics of the East Texas field are such that for the purpose of discussion, the field would be divided into three parts: the East Side, the Middle, and the West Side.

Now, a year and one-half later, this division becomes a necessity for actual pumping as well as for a purpose of discussion. Let us examine the field very briefly as a whole, and see why pumping wells are so very different in three or rather two different parts. The Middle is somewhat characteristic of both the East Side and the West Side. On the west, we have the waterdrive encroaching further east each year until now approximately 60 percent of the entire field is underlaid by water. Wells are being put on pump daily because of this water encroachment. On the east side, we have wells being put on the pump also, but not because of water. These wells are being put on the pump because of a lower bottom-hole pressure and a declining fluid level. Since we have water on the west side of the field and no water on the east side, it is obvious to see why the pumping conditions are so very different. The production of oil on the west side of the field after the well stops flowing is going to be very difficult and expensive. At this time, the wells in the middle of the field have a tendency to be characteristic of those on the east side, but later during the life of these wells in the middle, they will in all probability resemble those on the west side. For that reason the producer whose wells are in the middle portion of the field can and will in all probability resort to other means of producing oil other than pumping for some time.

This paper was prepared from the author's own knowledge and by information obtained by interviewing many other persons who live and work in the East Texas field. To them the author is indebted and to Sinclair Prairie Oil Company for permission to prepare the article.

Presented before the East Texas Chapter of the American Petroleum Institute Division of Production at Kilgore, Texas, on October 11, 1938.

Same Conditions Throughout the Entire Field

The condition of the bottom of the well itself is perhaps the most important item in a pumping well. There is a similarity regarding the condition of one well to another in the entire East Texas field. The most important thing in a pumping well is to be sure that the well itself is in condition to pump. By that it is meant to be sure that the fluid itself can get into the well bore, that the surface of the sand from which the fluid comes into the well is open and free from mud and cavings. Many failures in the field for wells not pumping efficiently have been caused by this condition existing in the bottom of the well rather than the failure of the mechanical pump itself. The productive sands in the East Texas field are of different thicknesses ranging from 150 feet on the west side to a few inches on the extreme east side. All the sand on the west however, does not contain oil, in some instances only a few inches of oil being in the upper part. The sands are variable in hardness, with the hardest occurring in the east side. Notwithstanding the variable degree of hardness, cavings of sand and shale do collect at the bottom of the well in the entire East Texas field. That does not mean, however, that every well will cave bad enough so that the well cannot be produced successfully by pumping without cleaning out and perhaps a liner being run.

A great majority of the wells in

the East Texas field have been completed in the following manner: by drilling into or near the base of the Austin chalk with rotary tools setting and cementing the oil string at this point, then waiting until the cement has set and drilling into or through the sand with a reduced hole and leaving this hole below the oil string open. By a study of core records and electrical surveys over the entire field, shale streaks, ashy sands, loose conglomerate, red beds, etc., have been found. Formations that will cave have been found to exist in some form in practically every well. Some operators have set a perforated liner in their wells after drilling into the sand before the well was ever swabbed in and put on production, thereby having something to hold back the cavings. Others of late have been drilling to a predetermined depth and setting the oil string entirely through the sand, later gun perforating opposite the producing sand. The two latter methods will, beyond all doubt, prove to be the better method of completing a well in order to insure a more efficient pumping well. Most of the operators who completed wells by the method first mentioned are having to clean out their wells and run liners before the wells are equipped to pump. As the bottom-hole pressure declines and the fluid levels recede, cavings will accumulate faster, and it is reasonable to believe that all wells completed by the first method will have to be equipped with a liner. While the wells were flowing, since they did not have some means of holding back cavings, cavities were bound to occur. This will cause caving to continue in some cases necessitating additional cleaning out.

Servicing of Wells

The servicing of wells, that is, pulling the rods and tubing, is the same throughout the field. Since the average depth of the entire field is around 3600 feet, the same pulling units together with the equipment can be used in all parts of the field. Practically every well that is now pumping is equipped to be serviced with a pulling unit either of a tractor type or a skid type mounted on a truck. The wells are equipped for the tractor to set either on the derrick floor or to be anchored back away from the derrick and a floor block used at the derrick. The latter method because of having the unit back away from the well out of the way of oil spraying or flowing while servicing well is the better method because it eliminates the fire hazard. Because most wells flow in the East Texas field while the tubing and rods are being pulled, the problem in servicing is to have the well under control at all times in order to avoid a flow of oil out into the air thus causing a dangerous fire hazard. This problem is overcome by using a rod stripper on the tubing while pulling rods. The stripper consists of a device which screws into the tubing and has rubbers which can be adjusted tight or loosely against the rods while pulling. This prevents the well from flowing into the air if it does flow. A similar device which is attached to the casing and packs off against the tubing by rubbers is used while pulling tubing. This precaution should be taken while servicing wells in this field, except some on the extreme west side where the pressure of water in great quantities prevents the well from flowing. Fresh water can be put in the top of the casing in order to keep the well from flowing while servicing and has been done without any noticeable harmful effects to the well except having some bad oil when the well is put to pumping again.

Gas Lift

There are 506 wells in the field reported producing by means of air and gas lift as of July 1, 1938. Although obtaining oil by this means is not pumping, nevertheless, this discussion would not be complete without a few words about gas lift. Gas lift as used in this field consists of two principal methods: One, by using a small string of tubing inside the regular 2-inch or 2½-inch tubing and applying gas pressure to either string of tubing; the other and perhaps the best, because of the improvements made with this equipment during the last few years, consists of flow valves being placed at various depths on the regular string of tubing. There are several different types suitable to various well conditions. The latter method of equipping wells is more expensive than the first but offers somewhat more control of the well while flowing. All wells in this field might be produced to depletion by gas lift. On the west side because of the water that will be required to produce the well allowable, it will be economically impossible to flow wells throughout their producing period. On the extreme east side of the field because of low fluid levels and small amounts of oil present in some wells, producing wells by gas lift probably cannot compete economically with pumping. Wells located towards the middle of the field because of a high fluid level and small amounts of water offer ideal conditions for the use of a gas lift at this time. This method of producing will be successful for a number of years.

Paraffin — East Side of Field

By the absence of water, this part of the field offers very few problems that are causing any particular amount of trouble or anxiety to the experienced producers. However, this part of the field has some things to contend with that do not occur in wells on the west side where the wells are making water. Paraffin causes a great amount of trouble in wells on the east side. This is due to restricted production, and in all probability the presence of several known fresh water sands extending from the surface to a depth of nearly 1400 feet. These sands carry cool water, and while the oil is standing in the casing and tubing, the paraffin has a tendency to congeal both on the sides of the casing and on the outside and inside of the tubing and around the rods. Some few cases have been reported that it was with some difficulty that the tubing was pulled out. For extreme cases of this knid, a mechanical scraper has been run on cable tools to clean the paraffin off the walls of the casing. Practically every well that is pumping on the east side of the field causes the operator some difficulty with paraffin while pulling rods.

Numerous cases have been been found where it was impossible to get the pump or traveling valve back to the bottom of the hole after pulling the rods in the well. This is remedied by several different methods. One method is to run a paraffin scraper on the sucker rods or swab line and merely scrape out the paraffin. Other means that have been resorted to in some extreme cases is to pull perhaps 1500 feet of the tubing and clean out the tubing by the application of steam inside. There are several paraffin solvents on the market now which the manufacturer of these chemicals claim by periodical treatments given by put-

ting the chemical in the top of the casing and later pumping out through the tubing will eliminate entirely this trouble caused by paraffin. These are being used with marked success in some wells in the field. This cleaning out and eliminating paraffin by this means serves a two-fold purpose; that is, keeping the well cleaned out and also cleaning out the flow lines to the tank battery.

Paraffin also gives trouble to the well servicing crews. Rod elevators and tubing elevators have become gummed up with paraffin especially during cold weather until they could not let the latches of the elevators function properly. Rods have been dropped and even tubing has been dropped in the well by allowing an excessive accumulation of paraffin on the tools. This should be given the attention of everyone servicing wells especially in this area.

Pumps — East Side

The choice of pumps and their efficiency used on the east side seems to be a matter of opinion of the operators. Both 2-inch and 2½-inch sizes are being used; the 2-inch is large enough to handle the volume of fluid. Some operators are equipping their wells with 2-inch insert pumps and pumps put in several years ago are still running and giving good service at this time. One group of wells were equipped with common 2½-inch working barrels and standing valves in the bottom of the working barrel with four cup traveling valves in 1932. Now, six years later, these wells are still producing without ever having the rods pulled and cups changed. By these two different examples it is impossible to recommend one kind of pump above another. Tubing and rods also, because there is no water to handle in this area, so far have given very little trouble. Some wells are equipped with ⅞-inch rods and others are equipped with ¾-inch rods. The ¾-inch rods are perhaps the best because of the depth of the wells. Five-eighths inch rods are not recommended by the manufacturer for 3600-foot wells because of not having the tensile strength required.

Surface Equipment—East Side

There now is installed in this area and in operation at this time practically every known kind of pumping equipment that has ever been manufactured from the crudest to the latest of single geared units, geared and band wheel powers and elaborate multiple well hookups. Each seems to be doing the work required of it. The guiding factor in the selection of pumping equipment on the east side of the field seems to be the cost of the different kinds of equipment and its adaptability to the operators needs.

The operators who have a group of wells located in such a manner that they may be pumped from a central power usually use this kind of equipment because it is more economical to install and cheaper to operate because of a fewer number of engines to keep in operation. These central powers are of both geared and band wheel type with the geared powers predominating. They are usually of the 100 horsepower type, 36-inch stroke, powered by from 90 to 130 horsepower gas engines and electric motors. Another reason for this type of equipment gaining in favor is due to the vast improvement made in the last few years in pumping jacks, safety well hook-offs, swings, holdups, holddowns, rod line carriers, etc. Particular attention should be paid to the proper location of the central power in regard to the wells that are to be pumped so that the power may be properly balanced; that is, the weight should be evenly distributed on all sides so that peak loads and strains may be eliminated as far as possible from the engine and geared power itself. However, with swings, it is possible to balance to a certain degree of accuracy wells in most any position. This, however, will be additional cost to the installation. Both ⅞-inch and 1-inch pull rods are being used as surface rods.

The multiple well hook-up, that is, several wells being pumped from one geared unit or standard rig is equipped with a backside crank, is becoming very popular and is particularly adapted to the east side of the field. This particular hook-up is growing in favor too, because of its economical value and because of its being particularly adapted to fit many operators' needs. Leases that have a few more wells than can be accommodated by central powers or several wells isolated by highways, creeks, or other obstacles can be equipped with multiple hook-ups very satisfactorily and will, in all probability, pump the wells throughout their entire productive life. Particular care should be given the selection of a unit if it is to be used on a multiple well hook-up to get one heavy enough and equipped with a prime mover with enough horsepower in order to insure efficient operation. Many multiple well hook-ups are now running in all parts of the field that are overloaded and because they are overloaded will not give efficient operation due to breakdowns and necessary repairs will cause it to become a very expensive installation.

There are many individual units being installed in the East Texas field on the east side ranging in size from 10 horsepower geared units equipped with 15 horsepower multiple cylinder engines to standard rigs equipped with from 25 to 40 horsepower horizontal two and four cycle gas engines. These are all adequate for these particular wells with the possible exception of the smaller units which might prove to be too small. If individual geared units are to be installed, they should not be of less than 20 horsepower size equipped with an engine of not less than 20 horsepower. Either single or double reduction units may be used with satisfactory results depending upon the speed that the prime mover will run. One advantage of the double reduction unit is that the pumping motion is smoother and the shock due to the pulsations of the engine are not transmitted so readily to the polish rod. Particular attention should be paid to the proper installation of equipment on the east side of the field. These wells will in all probability pump longer than wells in other parts of the field. These well on the east side, due to the lower fluid level that exists, have now and will continue to have a greater polish rod load than wells on further west. This equipment should be set on a good concrete foundation large enough to insure proper performance. There seems to be a tendency both in the selection of equipment and installations of same not to get the machinery heavy enough or to set it substantial. This undoubtedly will prove to be an expensive choice before the wells are through pumping.

The Middle Area

This area is the one, due to the fact that most all the wells are flowing, very little is known about the way the wells will act while pumping. From the physical characteristics of the field which have already been mentioned, this sec-

tion of the field will resemble the east side wells in their pumping behavior for a considerable length of time after the wells are first equipped to pump. We have every reason to believe that due to the great thickness of the sand which contains oil that successful work may be done in plugging back wells enabling the operator to control the production of water. As long as the water is successfully held in check by plugging back, the middle area will continue to pump much the same as the wells on the east side. Eventually, however, these wells will produce water in great quantities.

Equipment—Middle Area

Because of the fact that this area will resemble both the east and west side of the field during its entire life, the operator has a problem in selection and installment of pumping equipment. This problem is whether or not to equip these wells at first with equipment similar to that used on the east side or to equip them to pump greater volumes of fluid, anticipating this condition to come later.

We, in East Texas, have become reconciled to the allowable of each well as being 20 barrels of oil or a few more barrels at most. Some day, wells in the middle area and east side might be called upon to produce on a competitive basis. We must not confine our thoughts too much to the idea of 20 barrels of oil per well. As the volume of water to pump on the west side becomes greater and approaches an amount that cannot be economically produced, the wells will be plugged and abandoned. This will cut down the number of wells in the entire field and certainly would be reasons for an increase in the allowable for the remaining wells. The first allowable that was set for wells in this field was 225 barrels per well. Many wells in the field today are not equipped to pump this amount of fluid and certainly could not produce this amount of oil together with some water. The same pumping equipment as installed on the east side wells will pump wells in the middle area for a number of years. This consists of central powers, multiple well hookups, and individual units. These powers and multiple well hookups can be replaced if the need ever arises with equipment that will pump larger volumes later. This seems to be the prevailing thought among the operators who have installed pumping equipment in this area ahead of its need. This, because of its economical significance is a good practice. Some operators, however, are installing standard rigs and larger units in the middle area at this time. This is the safe thing to do and will undoubtedly solve the question of pumping equipment for all time.

West Side

Due to the encroachment of water in this area and the vast amount that is being pumped out of some wells, the following are a few questions that are being asked:

1. How much water can be pumped economically?
2. What is the life of a well after it begins to make upwards of 100 barrels of water, if such well is on the west side?
3. Can the oil production be skimmed from the water?
4. What kinds of pumps should be used?
5. What kinds of rods and tubing are best in this water area?
6. Will the central powers and multiple well hook-ups handle the volume of fluid necessary?

As the volume of fluid increases in amount necessary to produce the daily allowable of twenty barrels of oil, since only the twenty barrels of oil can be sold, the cost of producing increases as the water production increases. There is an inexhaustible supply of water on the west side of the field, and when the cost of producing gets to be more than the income derived from the sale of its oil, the well will be plugged and abandoned. A great number of wells have already been abandoned on the west side of the field. There are several methods of producing that could be resorted to whereby more water could be produced from the wells. They are the installation of larger tubing, casing pumps, electrically driven submerged pumps, gas lift, etc., but it is believed these are all prohibitive because of the cost. Another reason for not producing great quantities of water is that the oil has been found not to increase as the water production is increased. In some cases the oil and water has been found not to even increase in the same ratio as volumes in production are increased.

There has been pumped in this field on the west side as high as 1700 barrels of water per day. In tests that have been made, wells that were pumping around 500 barrels of water with 20 barrels of oil, it was found that when this water production was increased to 850 barrels no substantial increase in oil was noted. This shows that where an abundant amount of water is withdrawn from a well that has a very thin section of saturated sand, the oil does not always increase in amount as water production is increased. This might even lead to make us believe that by withdrawing water in great amounts, there is a tendency to hold back the oil by the water being drawn into the well bore so fast from below. Another feature that has a definite part is how much water can be produced economically with the disposal of the salt water after it is produced from the well. Salt water disposal is still in the experimental stage, but enough data has been secured that we know that the disposal of salt water is expensive in any form. Of course, the amount of water that can be pumped economically where the oil allowable is set at 20 barrels is up to the operator himself depending upon numerous things. Some operators will be able to produce more than others. Nevertheless, it is believed the amount will be from 500 to 600 barrels at the most.

It is impossible to say exactly how long a well will produce after it begins to make water. Several things must be taken into consideration to even attempt to do so. First, the location of the well relative to the extreme west side, the well density of the surrounding area, how much sand and what manner was the well originally completed, and whether or not the well can be plugged back successfully. From observation of a number of wells located on the extreme west side, these wells were all pumping and making approximately 50 barrels of water in 1935. Now, three years later, 70 percent of these wells are plugged and abandoned. This estimate will perhaps not hold true of wells located further east because of a higher ultimate recovery figure and to the possibility of successfully holding back water by plugging back.

Obtaining oil by skimming, that is, by pumping the well from a

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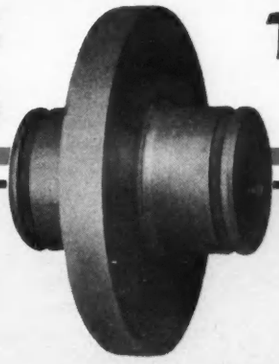

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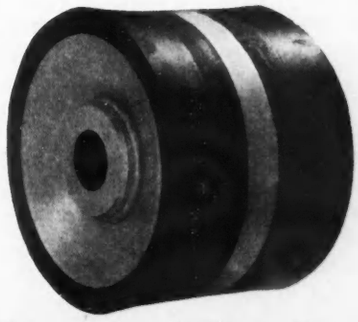

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depth less than its total depth will in all probability be detrimental to the well. It might cause the well to be plugged sooner than it would have been if the well has been pumped from bottom in the beginning. After a well begins to make considerable water, production can be obtained by skimming for a period of time, but eventually the pump will have to be lowered in order to obtain the oil. By skimming, the water fills up in the hole. This puts the water over the sand at all times and has a tendency to force the oil back away from the well bore. This has been substantiated by the action of some water wells that have been noted. Wells making several hundred barrels of water due to break-down, etc., have been allowed to stand several days before pumping was resumed. After pumping operations were resumed, the wells in some cases pumped several days before they began making oil again.

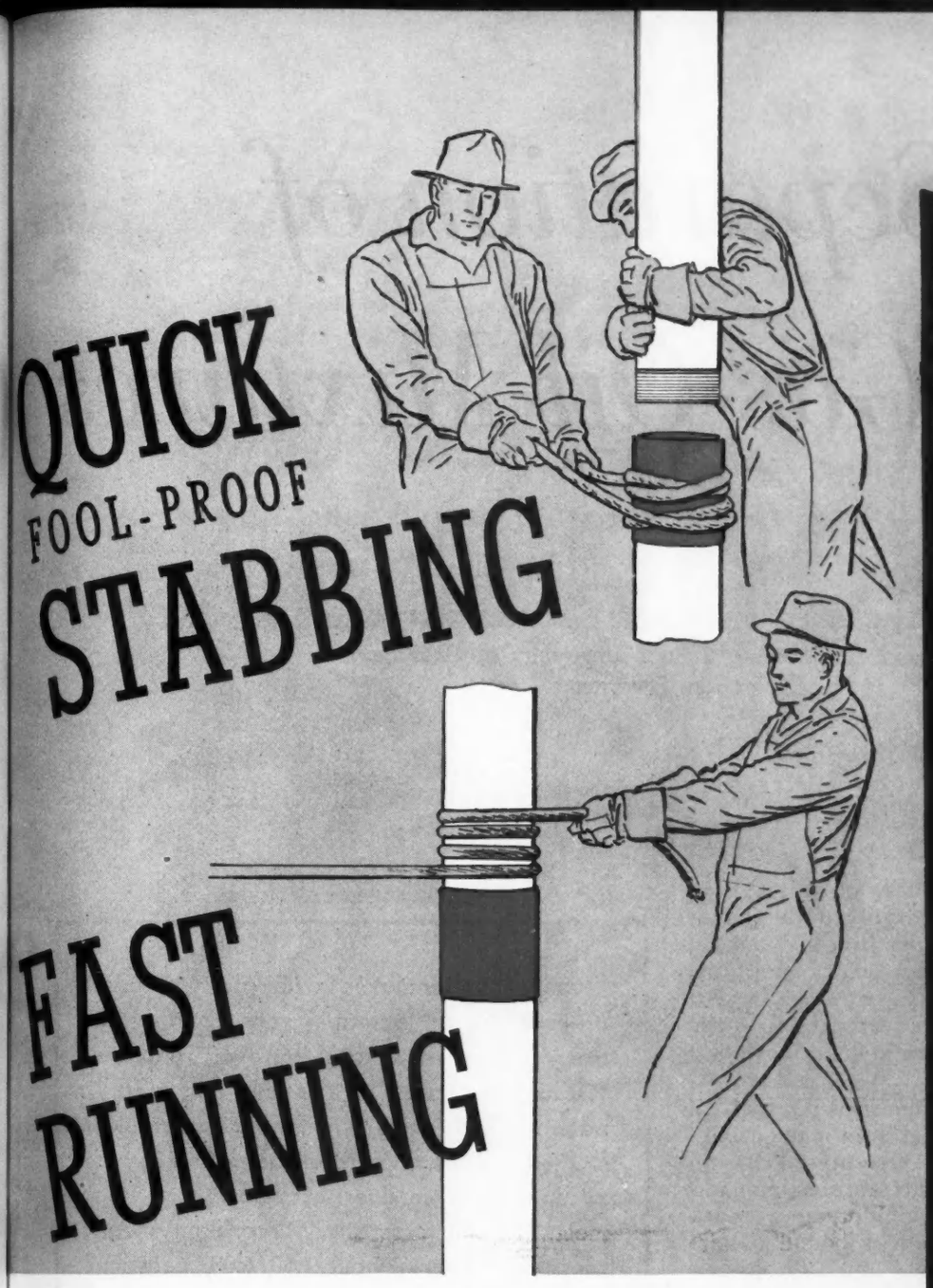
Due to large quantities of water that is being pumped out of several wells at this time and that is expected to be pumped out of all wells in this area, tubing less than 2½-inch in size will be too small. The 2-inch tubing has already been replaced with larger size in some wells on the west side of the field. When a well is first put on the pump on the west side, the operator has a wide choice of pumps. This is because the amount of fluid to handle will be small. No particular advantage seems to be gained by the selection of a pump at first. Insert pumps both of 2-inch and 2½-inch size are used in 2½-inch tubing. Common working barrels equipped with four, six, and eight cup valves together with some of the newer valves which have solid composition rings are also used. After the well begins to make a considerable amount of water, the insert pump is not satisfactory because it is not a volume pump. Liner pumps and a steel plunger are perhaps the best and most economical after great volumes of water are encountered. This is because of the fact that these pumps are made out of the very best grade materials that can be obtained. They are made to exact specifications so that the correct fit may be obtained to insure the best results. Valve cup manufacturers together with the manufacturers of the valves which use solid composition rings are making their products with considerable more thought being given to exact sizes. This insures considerable more efficiency than previously experienced with valves using cups and packing. As each well has its own peculiarities regarding pumping, it is impossible to say what kind of a pump will be most efficient. What will pump one will not pump another. In some wells, pumping 500 barrels of fluid, it is necessary to replace the pump every thirty days. Others run as long as six months before it is necessary to replace the pump. Both liner barrels and valves using cups or packing have been known to fail within 24 hours time. Both have been known to run six months, pumping approximately 500 barrels of fluid, so only by experience can the operator determine which type of pump is most efficient in each particular well.

For a considerable time after wells on the west side began making water, no particular example of corrosive water was experienced. This was due to the fact that there was not enough water being produced to cause any trouble to rods and tubing. Now, in some wells that produce several hundred barrels of Woodbine water per day, considerable trouble is being experienced with rods and tubing because of the corrosive action of the water. In some cases, the body of the rod itself has been damaged to such extent to cause breaking and the rods had to be replaced. Most notable example of corrosion occurs in the boxes and pins where, because the joints are not made up properly, water finds its way to the threads crumbling them away, making the rods unfit for further use for pumping. Some few operators are buying two different types of rods for use in different parts of the field. Wells making considerable amounts of water should be equipped with special rods while in the east side of the field medium carbon steel rods may be used. Water also attacks the tubing, noticeably where there is a slight leak in the tubing around the collar. A few cases have been known for the water to attack the threads and damage them to the extent of causing the tubing to part. This is very rare in this field at this time. At a later time when more wells are pumping water in great volumes, more trouble of this kind will be encountered. By making all joints up tight, taking particular precaution and eliminating all leaky joints, this trouble can be held to a minimum.

On the west side of the field, there are in operation daily central powers, multiple well hook-ups, and small geared units. This equipment will pump these wells only until its pumping capacity is reached. This kind of equipment capable of pumping less than 300 barrels of fluid will not pump these wells to depletion. The operator who has installed standard rigs and individual units of not less than 30 horsepower size and engines proportionately as large will be able to pump his wells until they are exhausted. Already a great number of wells have been equipped with individual units that formerly were pumped by central powers and back-side cranks. One reason why multiple well hook-ups and powers will not be efficient where volume pumping is needed is because for these wells to pump with equipment of this kind all of the wells must be balanced against each other as nearly as possible. Since each well is not like all others in water production, weight, etc., some wells will have to be pumped at a different speed and length of stroke, in order to obtain their allowable in oil. This is practically impossible with powers and multiple well hook-ups. Many operators who now have this kind of equipment in operation on the west side installed it with the knowledge that perhaps it would not be able to pump a volume of fluid necessary to produce the oil allowable. They own properties in other parts of the field that the powers and small units can be transferred to pump later when those properties quit flowing. Then larger units can be installed on the west side wells.

Conclusion

There are many minor problems confronting the operator who is pumping wells in the field. These will all be worked out by the operator himself to suit his particular needs. There are possibly but three major items to consider when putting a well on the pump. First, be sure that the well is in a condition to pump; that is, be sure that the fluid can get into the well bore by having the bottom of the hole clean. Second, select and install properly the pumping equipment. This is governed by the particular location of the well; that is, whether it is in the east side, middle, or west side of the field. Third, be sure that the subsurface equipment, rods, tubing, and pump are of the proper size and type to pump the volume and nature of fluid necessary.



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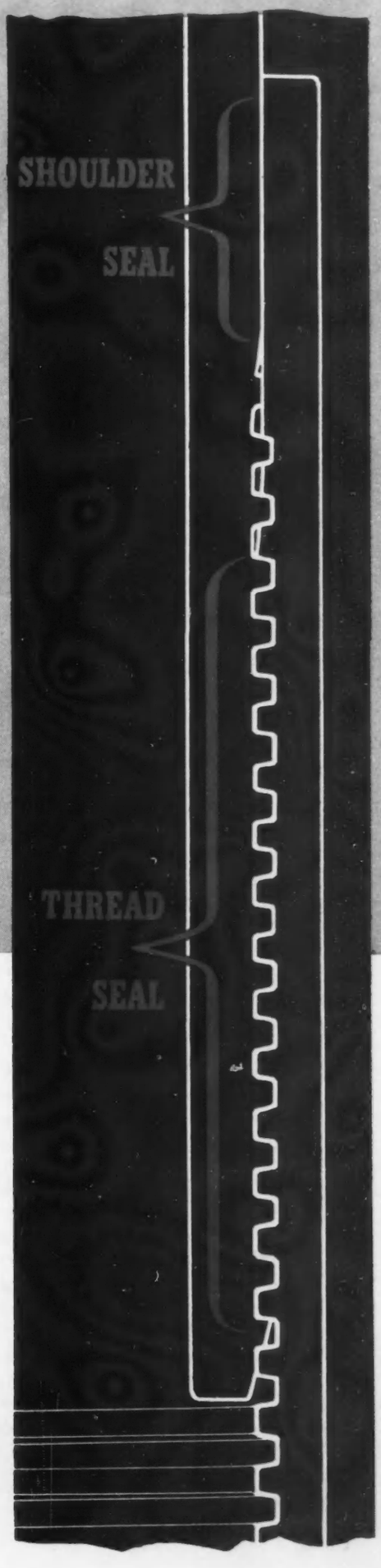

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THERE IS NOTHING EQUAL TO SEAMLESS

Stage Separation of Crude Gas-Oil Mixtures

By G. O. KIMMELL* and R. L. HUNTINGTON
Petroleum Engineering School, University of Oklahoma,
Norman, Oklahoma

Original quantitative data are presented on experimental laboratory runs, overing the stage separation of a mixture of Tonkawa (Oklahoma) crude oil, butane and a dry natural gas. Among the several variables studied, the relationship of the pressures between the successive separators gave the most interesting results. A constant stage pressure ratio of about 4.50 to 1 between each successive stage netted the lowest overall gas/oil ratio and the highest gravity crude oil.

Although the pressures studied in this investigation do not cover the retrograde region encountered in some "distillate" fields, it is believed that the results will throw some light on the technique to be applied in general to stage separation practice.

BECAUSE of the large number of variables involved in the study of stage separation, only qualitative proofs of its advantages have been observed in the field. Huntington, et al[2,3,5] have made quantitative observations on a low-pressure two-stage experimental unit. Benefits of stage separation to the various branches of the petroleum industry have been pointed out by Huntington.[1]

At the time this investigation was started, no quantitative laboratory study had been made using a volatile charging stock at high pressures. With the promotion of repressuring and pressure maintenance programs, come the problems of high pressure separation. Here multi-stage separation is bound to play a part.

Fundamental Concepts

Stage separation is a method of producing crude oil or "distillate" by subjecting the well stream to a series of flash vaporizations in successive pressure reductions.

Oil as produced from a flowing well is usually saturated with gas. In addition to the gas held in solution in the oil at well head pressure, a certain amount of excess gas often is produced. If the oil and gas mixture is flashed under equilibrium conditions at low pressure, less oil is vaporized if the lighter dissolved gases and the excess gas (mostly methane and ethane) are removed differentially.

The experimental unit explained below can be compared to two separators and a storage tank used in the field to handle production from a well with a flowing tubing pressure of 535 pounds. Some gas will come out of solution in the tank, therefore the set-up is called a *three stage separation unit.*

Pressure on the first and second stages could be varied from well-head pressure to tank pressure. In order to eliminate the examination of a large number of first and second stage pressure combinations, the term "stage pressure ratio" has been introduced which gives an excellent means of correlating the data. Stage pressure ratio is the quotient of the abso-

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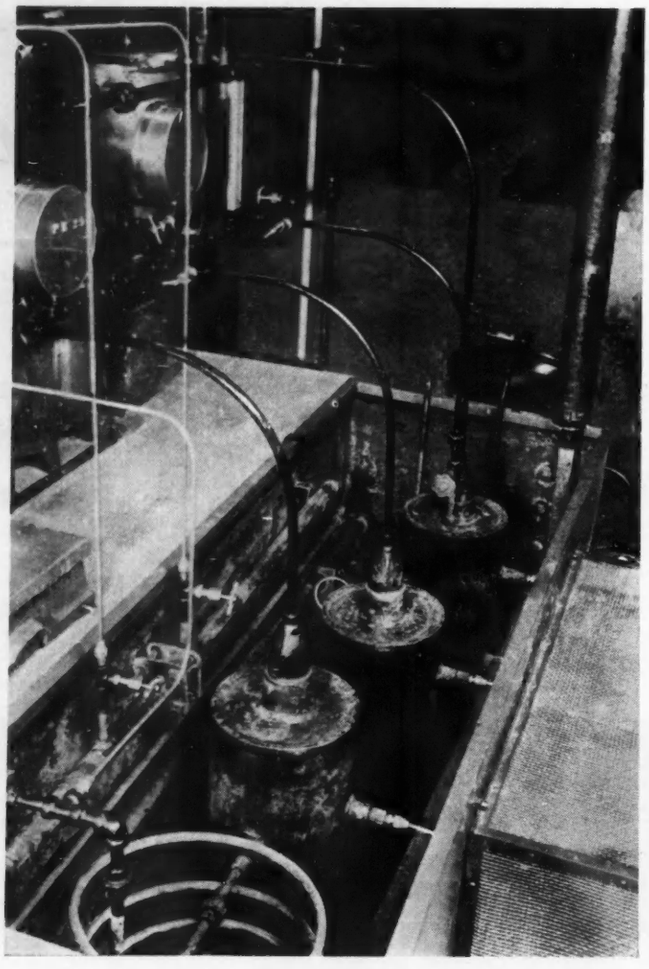

FIGURE 1

The experimental three-stage separator used in making the tests at the University of Oklahoma.

lute pressure on one stage divided by the absolute pressure on the stage immediately below it. Separating at a stage pressure ratio of one (holding the same pressure on all the stages) is exactly equivalent to a single stage. If the first stage pressure and tank pressure are known, a constant stage pressure ratio for all of the stages, and the corresponding intermediate stage pressures can be determined for any number of stages by the following equation.

$$R = \frac{(P)^{\frac{1}{s-1}}}{p} \qquad (1)$$

in which: R = stage pressure ratio
s = number of stages
P = first stage pressure Lbs. per sq. in. abs.
p = last stage pressure Lbs. per sq. in. abs.

Materials and Apparatus

In order to duplicate as closely as possible the production from a well with a flowing tubing pressure of 550 pounds absolute, crude oil, butane, and natural gas were mixed together.

Crude oil for the tests came from the Tonkawa field in Northern Oklahoma. Normal butane was obtained from Phillips Petroleum Company's Capitol Hill plant at Oklahoma City. The composition of the natural gas, taken from Oklahoma Natural Gas Company's main, was remarkably constant. Its specific gravity did not change during several weeks of the tests by more than 0.002 (air = 1).

The entire experimental unit was designed to stand a pressure of 1200 pounds. The test separators were equipped with automatic fluid control regulators to facilitate uniform oil flow. Small glass wool scrubbers were placed at the top of the separators to prevent entrainment into the gas system. The volume of gas charged was measured with a small differential orifice meter. Gas volumes from the first and second stages

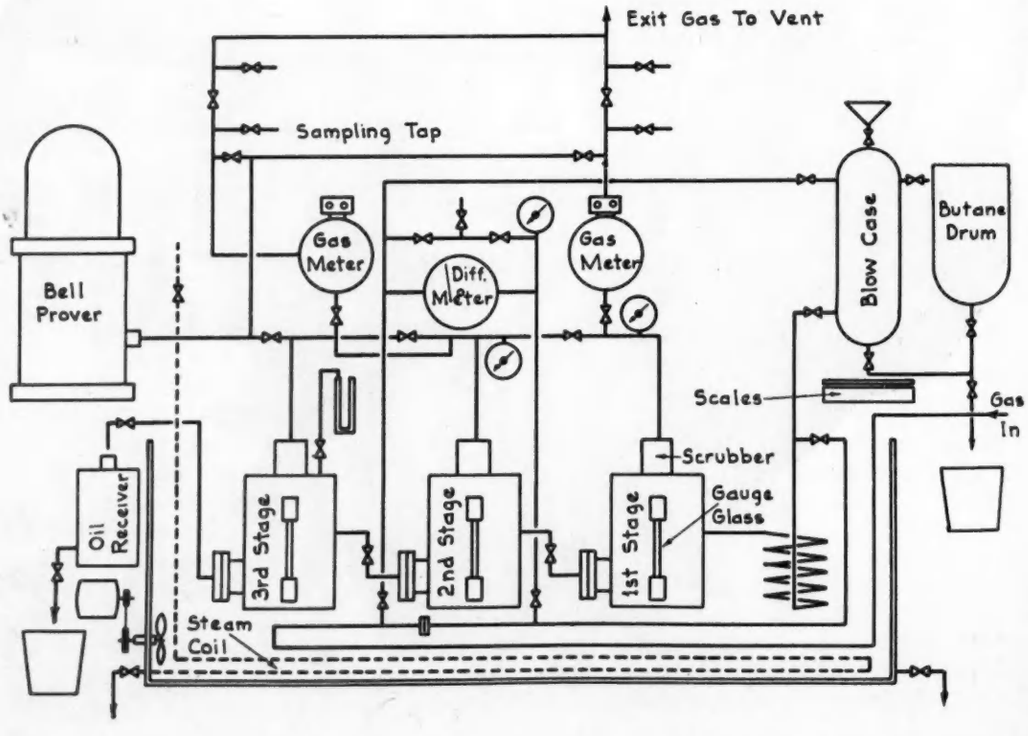

FIGURE 2

Flow diagram of experimental three stage separator.

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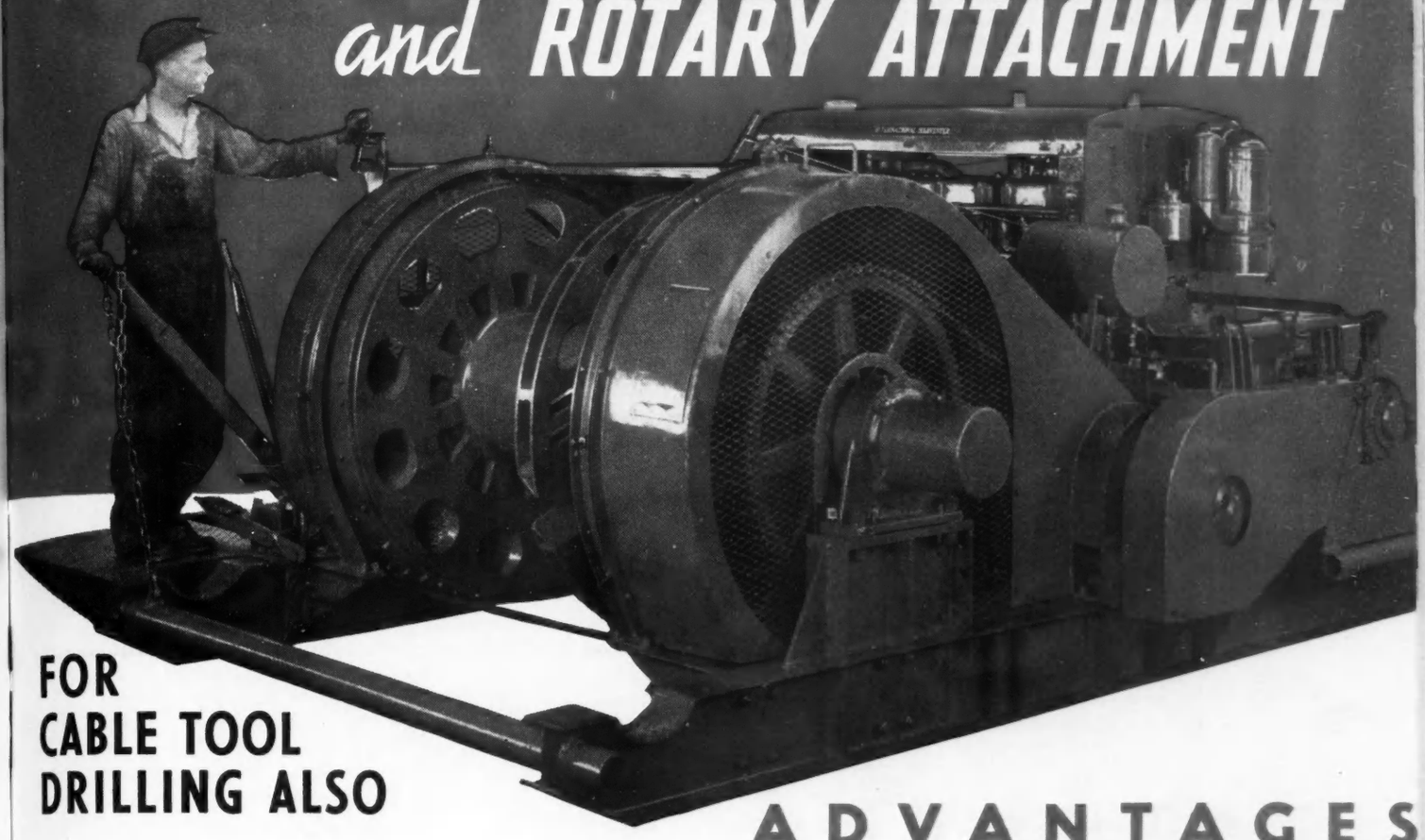

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ADVANTAGES

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- Centralized Controls provide easy operation from the driller's position.
- Large Brakes and Drum Assembly give considerable advantage over conventional equipment.
- Easy Portability: Weight 11,000 lbs. without engine.
- Power: Gas or Diesel up to 150 H.P. with Maximum Torque of 550 ft. lbs.

SPOOLING CAPACITY

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3/4"	10,000	3/4"	6,300
7/8"	7,300	7/8"	4,500
1 "	5,500	1 "	3,400

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were measured with positive displacement meters. Gas from the third stage was metered in a bell prover, connected up with the apparatus in such a way that the displacement meters and the differential meter could be calibrated and checked against it. A blow case, mounted on a pair of scales and connected to the equipment with flexible tubing, was used to charge the liquid mixture of oil and butane into the first stage. The differential meter run, and the separators were placed in a water bath heated with a closed steam coil. A photograph of the three separators in the water bath is shown in Figure 1. The screen cage fastened to the right side of the water bath tank, afforded portection against rupture of the gage glasses used to check the fluid level in the separators at the start and finish of the runs. To thoroughly mix the total charging stock of gas and oil and bring it up to bath temperature, the mixture was passed through the coil shown in the near end of the tank. The meter run and its pressure taps are shown hanging against the inside of the water bath tank on the left. All valves used to control the flow of gas or oil through the system were small stainless steel needle valves, and those used at control points were equipped with long handles for fine adjustment. A complete flow diagram for the test apparatus is shown in Figure 2.

*Corrections for the weight of the gas replacing the discharged oil in the blow case had to be applied.

TABLE 1

Corrected Experimental Data

showing

EFFECTS OF STAGE PRESSURE RATIO ON STAGE SEPARATION EFFICIENCY

CONSTANTS:

Gas/Oil Ratio, Cubic Feet per Barrel	1000
Water Bath Temperature, Degrees Fahrenheit	100
Standard Cubic Feet of Gas Charged	28.90
Specific Gravity of Gas Charged (Air = 1)	0.610
Pounds of Gas Charged	1.314
Gravity of Oil Charged, Degrees A.P.I.	46.0
Pounds of Oil Charged	8.05
Duration of Runs, Minutes	15

Stage Pressure Ratio	1	2	3	4	5	6
First Stage Pressure, Lbs. per Sq. In. Abs.	15	60	135	240	375	540
Gas Vol. from 1st Stage, Standard Cu. Ft.	33.6	31.80	29.75	28.40	26.40	25.20
Gas from 1st Stage, Vol. Percent of Gas Charged	116	110	103	98.3	91.3	87.2
Gas Sp. Gr. from 1st Stage (Air = 1)	0.983	0.817	0.745	0.703	0.684	0.672
Pounds of Gas from 1st Stage	2.460	1.939	1.651	1.489	1.346	1.253
Second Stage Pressure, Lbs. per Sq. In. Abs.	15	30	45	60	75	90
Gas Vol. from 2nd Stage, Standard Cu. Ft.	0	0.263	0.651	1.46	2.57	3.72
Gas from 2nd Stage, Vol. Percent of Gas Charged	0	0.91	2.25	5.05	8.89	12.9
Gas Sp. Gr. from 2nd Stage (Air = 1)	0.983	1.02	0.983	0.953	0.891	0.870
Pounds of Gas from 2nd Stage	0	0.020	0.048	0.104	0.171	0.241
Third Stage Pressure, Lbs. per Sq. In. Abs.	15	15	15	15	15	15
Gas Vol. from 3rd Stage, Standard Cu. Ft.	0	0.172	0.475	1.22	1.76	2.04
Gas from 3rd Stage, Vol. Percent of Gas Charged	0	0.59	1.64	4.22	6.09	7.06
Gas Sp. Gr. from 3rd Stage (Air = 1)	0.983	1.34	1.42	1.60	1.65	1.65
Pounds of Gas from 3rd Stage	0	0.017	0.050	0.146	0.216	0.251
Gravity of Oil from 3rd Stage, Degrees A.P.I.	40.5	42.2	42.5	43.2	43.7	43.7
Total Gas from 3 Stages, Standard Cu. Ft.	33.6	32.24	30.87	31.08	30.73	30.96
Total Pounds of Gas from 3 Stages	2.460	1.976	1.749	1.739	1.733	1.745
Total Gas from 3 Stages, Vol. Percent of Gas Charged	116	111.6	106.9	107.6	106.3	107.0
Volume of Dissolved Gas Stripped, Standard Cu. Ft.	4.70	3.37	2.00	2.21	1.86	2.09
Dissolved Gas Stripped, Vol. Percent of Gas Charged	16.3	11.7	6.92	7.65	6.44	7.24
Pounds of Dissolved Gas Stripped	1.15	0.662	0.435	0.425	0.419	0.431
Dissolved Gas Stripped, Wt. Percent of Oil Charged	14.3	8.3	5.5	5.3	5.2	5.4
Sp. Gr. of Dissolved Gas Stripped (Air = 1)	3.28	2.64	2.92	2.58	3.02	2.76

Experimental Method

The maximum error for any of the readings was set at plus or minus one percent, so all measuring devices used on the apparatus were checked against standards and correction curves plotted for their operating ranges. The liquid charging mixture was prepared by pouring a given weight of oil in the blow case, closing it to the atmosphere, and adding 10 percent by weight of liquid butane from an inverted drum. The orifice meter was operated at 550 pounds absolute during all the runs. Gas from the upstream side of the orifice plate was used to drive the oil from the blow case into the mixing coil. An indicated charging rate* of 0.5 pounds per minute was used for all the runs. Sufficient oil could be stored in the blow case to make two runs of 15 minutes each and also to provide for a stabilization period of 30 minutes. A gas-oil ratio of 1000 cubic feet of natural gas per barrel of liquid charging stock was chosen for the tests, so a constant rate of gas charge of 1.93 cubic feet per minute was maintained by holding a predetermined differential pressure across the orifice plate. The bath temperature was held between 99 and 101° F.

The volumes and specific gravities of the gases from the three stages were taken during the runs, and immediately afterwards the A.P.I. gravity of the separated oil was determined. The corrected experimental data and calculated quantities appear in Table 1 for stage pressure ratios from one to six.

Theoretical Considerations

Examination of the experimental data did not reveal the degree to which the stages had approached equilibrium, and it was desired to show by theoretical means, that equilibrium conditions had been approached.

The total charging stock was assumed to be a five component mixture consisting of methane, ethane, butane, and Tonkawa crude oil broken down into two fractions, (1) gasoline, and (2) kerosene and heavier. The natural gas used was substantially 90 percent methane and 10 percent ethane. Examination of a distillation curve of the crude oil showed that it had a gasoline content of about 45 percent by volume. The specific gravity of the gasoline was 0.75 and of the crude oil 0.818 or 41.4 degrees A.P.I. From the volume percent and specific gravity of the gasoline fraction and the specific gravity of the crude oil, the volume percent and specific gravity of the kerosene and heavier fraction were calculated. The following table shows the calculated composition of the feed.

Component	Mol Wt.	Pounds	Mols	Mol fraction of total charge
Methane	16	1.087	0.0679	0.514
Ethane	30	0.227	0.0076	0.058
Butane	58	0.732	0.0126	0.095
Gasoline	110		0.0265	0.200
Kerosene and heavier	250	7.32	0.0176	0.133
			0.1322	1.000

The mol composition of the gas and oil from the

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TABLE 2

Results of Theoretical Calculations

showing

EFFECTS OF STAGE PRESSURE RATIO ON STAGE SEPARATION EFFICIENCY

CONSTANTS:

Gas/Oil Ratio, Cubic Feet per Barrel	1000
Temperature of Stages, Degrees Fahrenheit	100
Standard Cubic Feet of Gas Charged	29.20
Specific Gravity of Gas Charged (Air = 1)	0.605
Pounds of Gas Charged	1.314
Gravity of Oil Charged, Degrees A.P.I.	48.5
Pounds of Oil Charged	8.05

Stage Pressure Ratio	1	2	3	4	5	6
First Stage Pressure, Lbs. per Sq. In. Abs.	15	60	135	240	375	540
Gas Vol. from 1st Stage, Standard Cu. Ft.	34.8	32.3	30.3	28.6	27.2	25.6
Gas from 1st Stage, Vol. Percent of Gas Charged	123	111	104	97.9	93.2	87.7
Gas Sp. Gr. from 1st Stage (Air = 1)	0.896	0.765	0.705	0.667	0.645	0.631
Pounds of Gas from 1st Stage	2.327	1.866	1.593	1.423	1.308	1.204
Second Stage Pressure, Lbs. per Sq. In. Abs.	15	30	45	60	75	90
Gas Vol. from 2nd Stage, Standard Cu. Ft.	0	0.22	0.82	1.58	2.68	4.10
Gas from 2nd Stage, Vol. Percent of Gas Charged	0	0.75	2.81	5.41	9.18	14.0
Gas Sp. Gr. from 2nd Stage (Air = 1)	0.896	0.941	0.912	0.916	0.868	0.826
Pounds of Gas from 2nd Stage	0	0.015	0.056	0.108	0.173	0.253
Third Stage Pressure, Lbs. per Sq. In. Abs.	15	15	15	15	15	15
Gas Vol. from 3rd Stage, Standard Cu. Ft.	0	0.145	0.60	1.02	1.49	1.87
Gas from 3rd Stage, Vol. Percent of Gas Charged	0	0.50	2.05	3.49	5.10	6.40
Gas Sp. Gr. from 3rd Stage (Air = 1)	0.896	1.30	1.51	1.61	1.59	1.56
Pounds of Gas from 3rd Stage	0	0.014	0.070	0.122	0.177	0.217
Gravity of Oil from 3rd Stage, Degrees A.P.I.	42.5	44.5	45.8	46.5	46.5	45.9
Total Gas from 3 Stages, Standard Cu. Ft.	34.8	32.67	31.72	31.20	31.37	31.57
Total Pounds of Gas from 3 Stages	2.327	1.895	1.718	1.653	1.658	1.674
Total Gas from 3 Stages, Volume Percent of Gas Charged	123	112.3	108.9	106.8	107.5	108.1
Volume of Dissolved Gas Stripped, Standard Cu. Ft.	5.60	3.47	2.52	2.00	2.17	2.37
Dissolved Gas Stripped, Volume Percent of Gas Charged	19.2	11.9	8.63	6.85	7.43	8.11
Pounds of Dissolved Gas Stripped	1.013	0.581	0.405	0.339	0.344	0.360
Dissolved Gas Stripped, Wt. Percent of Oil Charged	12.6	7.22	5.03	4.21	4.27	4.47
Sp. Gr. of Dissolved Gas Stripped (Air = 1)	2.43	2.24	2.16	2.27	2.13	1.92

stages and the volume overhead were calculated by the formula developed below.

Basis: One mol of feed

$$X_f = VY_v + (1 - V)\,X_l \qquad (2)$$

or

$$Y_v = \frac{X_f - (1 - V)\,X_l}{V} \qquad (3)$$

$$Y_v = KX_l \quad \text{Henry's Law} \qquad (4)$$

substituting (4) in equation (2)

$$X_f = VKX_l + (1 - V)\,X_l \qquad (5)$$

simplifying (5)

$$X_f = X_l\,[1 + V\,(\overline{K - 1})] \qquad (6)$$

solving (6) for X_l

$$X_l = \frac{X_f}{1 + V\,(K - 1)}$$

in which:

X_f = the mol fraction of any one component in the feed

X_l = the mol fraction of any one component in the liquid

V = mols overhead

Y_v = the mol fraction of any one component in the vapor

K = vaporization equilibrium constant.

The "K" values were taken from extrapolated cross plots of data published by Katz and Hachmuth.[4] The investigation by Katz and Hachmuth was made on a mixture of hydrocarbons somewhat similar to the one used in the stage separation tests.

Calculated values for six conditions exactly similar to the experimental, are shown in Table 2. In order to determine the volume overhead, values for V were assumed until the sum of the X_l terms was equal to 1.

Discussion and Interpretation of Data

Experimental variables and the corresponding theoretical values are plotted together for comparison. Figure 3 shows the effect of stage pressure ratio on the specific gravity of the gas from the stages. The maximum gravity of gas from the third stage occurs at a stage pressure ratio close to 4.5, which will be shown later to be the ideal stage pressure ratio for the conditions of the test. The first stage gas gravity decreases with increase in stage pressure ratio, indicating that as the first stage pressure is increased, the heavier gas fractions are driven to the third stage for separation.

In Figure 4 the volume of gas from each stage and

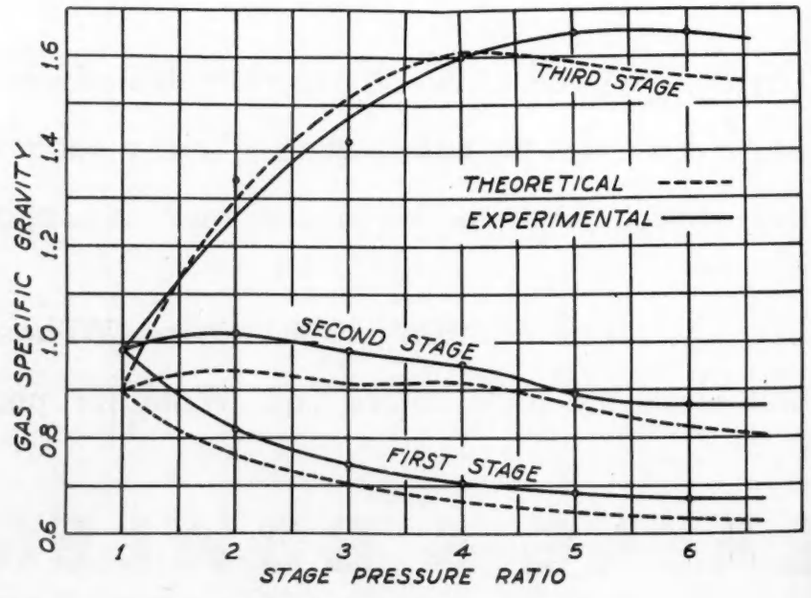
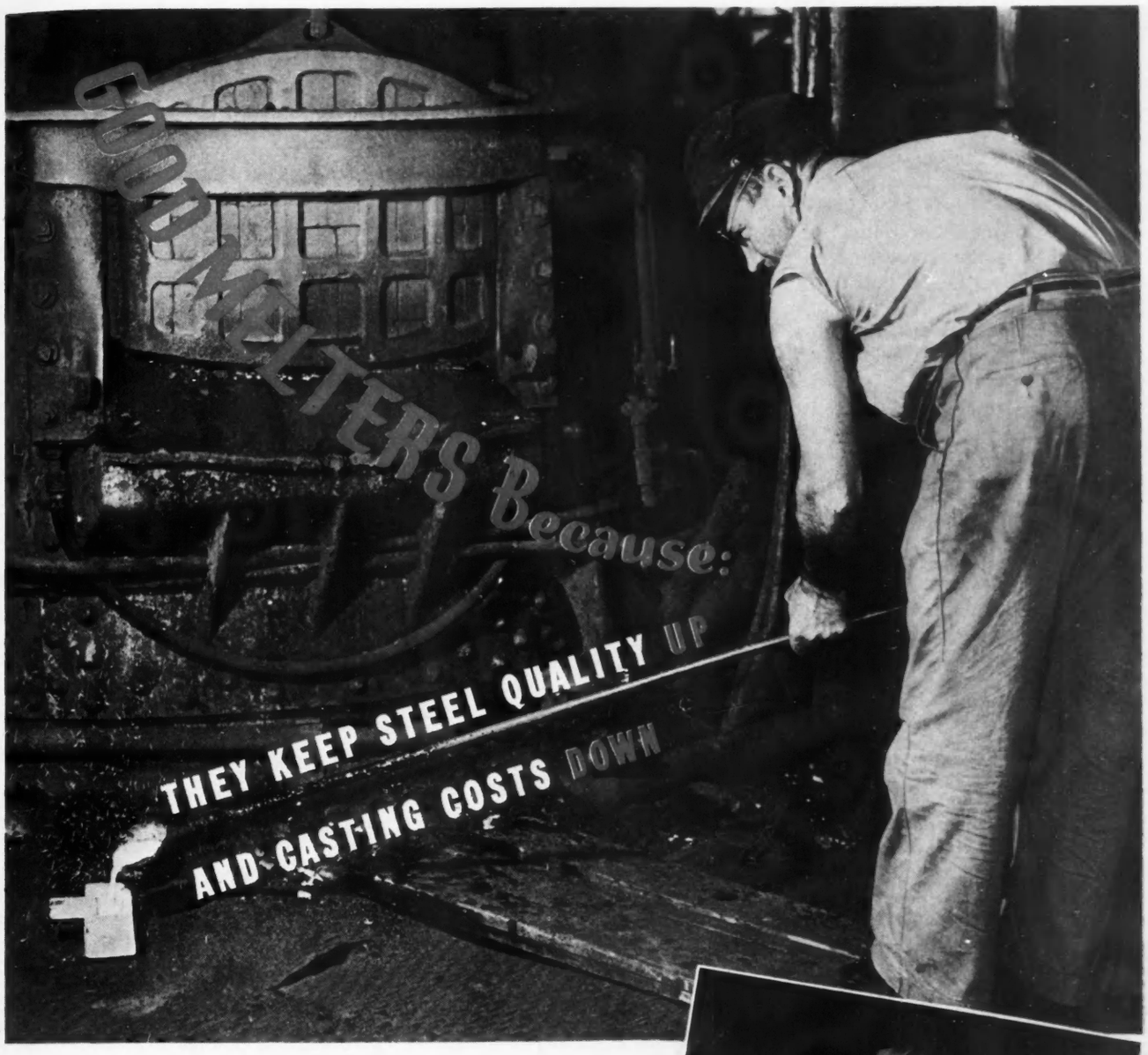


FIGURE 3

Variation of gas specific gravity from the stages with stage pressure ratio. (Air=1).



Ellis Kingham, TESCO melter (above) and R. D. May, assistant (right), can proceed with a heat of steel by checking a heat sample fracture, making any adjustments necessary to exactly match specifications. But . . . they double-check their findings by rushing fractured bar to chemical laboratory. Eight minutes later they have an accurate analysis report from chemist. The remotest possibility of error is thereby eliminated.

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the total gas from all the stages are plotted against stage pressure ratio. The total separated gas volume (equivalent to the overall gas/oil ratio) varies but 10 percent but is decidedly at a minimum for a stage pressure ratio of 4.5.

In Figure 5 the curve marked "oil gravity" is the corrected A.P.I. gravity of the separated oil. The theoretical curve is somewhat higher than the experimental because the theoretical gravity was calculated for the third stage. In order to determine the gravity experimentally, the oil had to be removed from the third stage. During this operation the oil suffered a pressure drop of about 0.6 pounds. The pressure drop and the weathering are responsible for the lower indicated gravities of the experimental curve.

The curve labeled "gas gravity" is the gas specific gravity of the liquid fraction stripped from the crude oil in its passage through the three separators. The gas specific gravity of this stripped fraction does not vary appreciably with changes in stage pressure ratio, but the volume of the fraction does vary considerably as is shown by the curve labeled "gas volume." The volume of the liquefied gas fraction stripped is plotted in volume percent of the total natural gas charged. The curve labeled "gas weight" is a comparison of the weight of the liquefied gas fraction stripped to the total weight of liquid charged. This "gas weight" curve can be interpreted as a measure of the weight percent of the oil saved at various stage pressure ratios. All the curves indicate the importance of the stage pressure ratio of 4.5.

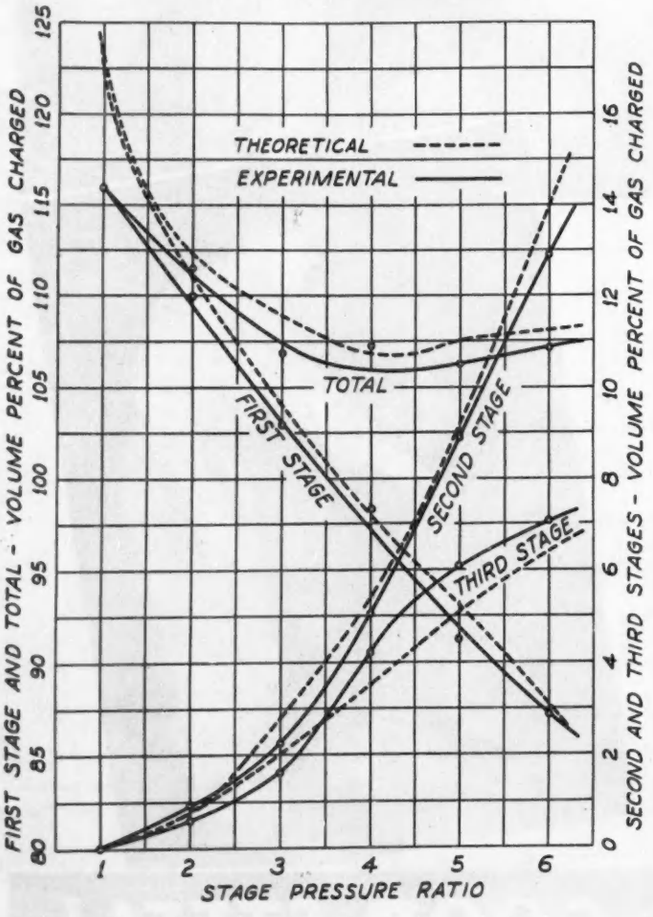

FIGURE 4

Variation of gas volume from the stages with stage pressure ratio. (Cu. Ft. at 14.40 and 60).

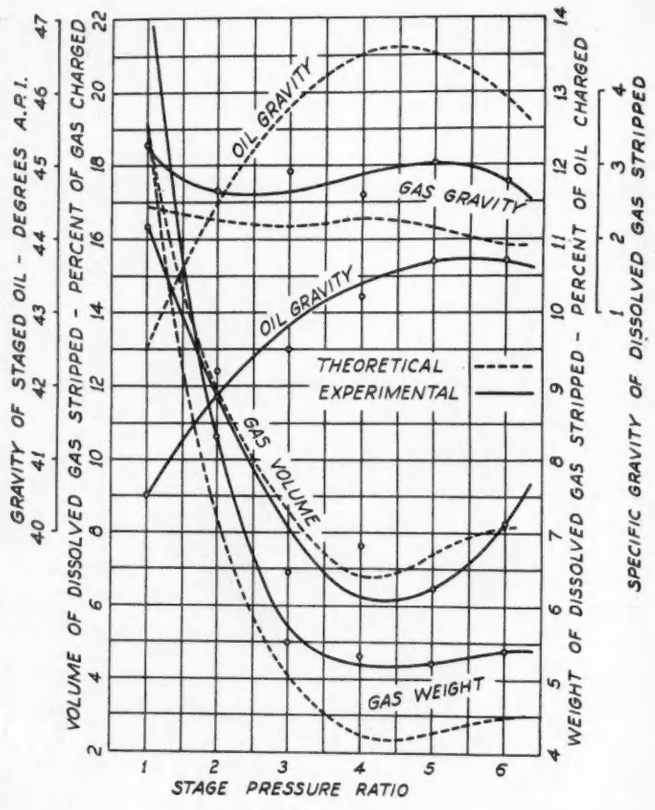
GRAVITY OF STAGED OIL - DEGREES A.P.I.
VOLUME OF DISSOLVED GAS STRIPPED - PERCENT OF GAS CHARGED
WEIGHT OF DISSOLVED GAS STRIPPED - PERCENT OF OIL CHARGED
SPECIFIC GRAVITY OF DISSOLVED GAS STRIPPED
STAGE PRESSURE RATIO
OIL GRAVITY
GAS GRAVITY
OIL GRAVITY
THEORETICAL
EXPERIMENTAL
GAS VOLUME
GAS WEIGHT

FIGURE 5

Variations in the stripping of dissolved gas with stage pressure ratio.

Significance of Results

(1) Stage separation definitely affords a method of increasing the volume of oil recovered from a flowing well.

(2) A knowledge of the effects of stage separation on oil and gas volumes and gravities gives several methods for determining the most efficient pressure combination in the field.

(3) It is proved that if a set of vaporization equilibrium constants, applicable to the well head mixture, are available, theoretical calculations afford a convenient means of analyzing a proposed stage separation installation.

Acknowledgment

Appreciation is expressed for the assistance given by L. S. Reid, Henry Black, and Marvin Owens in the construction and operation of the experimental separators.

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The data of this paper represents a portion of the work done by G. O. Kimmell in fulfilling the requirements of the Master's degree in Petroleum Engineering at the University of Oklahoma in 1937.

WORLD DEVELOPMENT and TECHNOLOGY

Edited by
WM. V. GROSS, Associate Editor

Mexican Situation

Government plans to make seizure of properties complete . . . Exports of crude and products are half pre-expropriation . . . Court refuses hearing.

Reports coming from Mexico during the past week indicate that within the near future the Mexican government plans to take over all the remaining property of foreign owned oil companies.

The first seizures covered most, but not all, of the larger companies, some smaller, and at least one large company's property's now being taken. Now, it is said, the Mexican government plans to go the whole way on seizures.

During the past week drilling wells along the Mexico-United States border were taken over by the government. Among the companies whose wells were taken were Continental and Sinclair.

UNOFFICIAL reports from Mexico City indicate that Mexico's exports of petroleum and products amounted to $5,210,000 for the 5½ months from the expropriation of oil properties March 18 to September 1. That included cash and barter credit.

Crude-oil exports in the period totaled about 1,875,000 barrels, priced generally from 85 to 97 cents, although some recent sales have been made at 70 cents, including those to Eastern States Petroleum Company at Houston.

The exports of about one million dollars a month in this period compared with about two million dollars monthly under the oil company operations.

In the 5½ months this year, crude exports averaged about 340,000 barrels a month, as compared with about 2,000,000 barrels a month in 1937.

The Davis interests have been the heaviest buyers of Mexican crude this year, having taken 1,297,000 barrels of the 1,875,000 barrels exported by the government up to September 1. The same interests also took over 800,000 barrels of gasoline, large amounts of gas oil and fuel oil, and some other products.

The Davis purchases went largely to Europe, and Germany received a considerable part of those shipments.

The Davis contracts with the government are nearing termination by mutual agreement, and Eastern States Petroleum Company has become principal buyer. It is reported the latter will take 10,000 barrels a day for two years, or a total of over 7,000,000 barrels. About 70.0000 barrels went from Tuxpam for Houston in August, and additional shipments have been made subsequently.

Various other purchasers have bought Mexican crude since the expropriation, including the Thomas interests, 75,000 barrels, shipped to Antwerp April 20; the Johnson interests, two cargoes, totaling 63,000 barrels, in May; Central American interests, two cargoes, totaling 182,000 barrels, in June and July, shipped to Belgium; Atlantic Refining Company, two cargoes of 65,000 barrels each in July and August.

Asphalt exports from Mexico have been taken largely by the Stendrup interests of Houston. They took 19,270 out of a total of 21,310 metric tons. The total shipments were valued at $195,200, prices having ranged from $8 to $10 a ton. The shipments were made to Australia, Belgium, Czechoslovakia, England, France, Germany, Ireland, Italy, Norway, and Sweden.

U. S. probes charge Mexico "dumping" expropriated oil

Charges that Mexican oil is being dumped into Gulf markets at prices which threaten to demoralize the domestic industry were this week under investigation by Treasury agents, with the possibility that the anti-dumping provisions of the tariff act may be invoked if it is found that the Mexican product is being sold at prices lower than those prevailing in Mexico.

Complaints to Washington said that the Mexican oil—the product of American and British wells which had been expropriated by the Mexican government—was being laid down at as little as 68 cents a barrel at Gulf points where domestic oil was bringing a great deal more. Under the tariff act, the President is authorized to increase duties up to 50 percent of the value of the commodity or to bar entry entirely in the case of goods which are "dumped" on the domestic market to such an extent as to threat any American industry.

Invocation of the anti-dumping provision was resorted to following an unsuccessful effort on the part of domestic oil interests to bar the importation of Mexican oil on the ground that its ownership was in dispute and did not legally lie with the Mexican government. The tariff laws, however, provide that ownership of imported merchandise shall be deemed to lie with the American importer.

Thanks

—Bill Saylor in Houston Post

Mexican court refuses oil companies' appeal

The foreign-controlled oil companies of Mexico face prolonged litigation in their efforts to regain their expropriated properties, in consequence of the Mexican Supreme Court's refusal October 8 to hear the appeals of the companies against the expropriation. The court held that the companies were premature in appealing to it against the expropriation law of 1936 and the expropriation decree of March 18, this year; that the companies had no reason to appeal to the courts until they had obtained a decision in their administrative appeal to the department of national economy.

Meanwhile, the government retains

possession of the oil properties, and the oil companies must await the national economy ministry's decision.

Determination of the legality of the expropriation thus has been made indefinite, as the departmental ruling must be awaited before the companies can carry the matter up through the courts to obtain a final supreme court decision.

Shell attaches Mexican gasoline in French tanks

E Aguila Company (Royal Dutch-Shell) attached some 12,500 tons of gasoline in tankage at Havre, France; fuel that represents portions of consignments from Mexico and which the company claims it owns.

Venezuelan production and exports decline in July

There was a slight falling off in both production and exports of petroleum in Venezuela during July, according to a report to the Department of Commerce by the office of the American Commercial Attache at Caracas.

Production during the month was recorded at 2,404,690 metric tons, a decrease of approximately 1.3 percent from production reported for July 1937, and a decrease of approximately 0.23 percent compared with June 1938.

Exports during July totaled 2,266,213 metric tons and included 1564 metric tons of gasoline, representing a decrease of 2.2 percent compared with the corresponding month of 1937 and a decrease of approximately 1.8 percent compared with exports reported for June 1938, the report stated.

Production of petroleum in Venezuela during the first 7 months of the current year totaled 15,738,179 metric tons compared with 14,887,066 metric tons produced during the corresponding period of 1937, while exports during the period totaled 15,099,976 metric tons compared with 13,465,441 metric tons exported during the first 7 months of 1937.

Venezuela needs and welcomes foreign capital

The investor who will "come to us on bases of equality and fairness" has "nothing to fear in Venezuela," Dr. Diogenes Escalante, Venezuela's Minister to the United States, declared October 11 to a group of American bankers and investors at a luncheon in the Wall Street Club, 40 Wall Street.

Dr. Escalante said that his nation needs and welcomes foreign capital and foreign technicians to develop its natural resources.

He told the group that uneasiness about investments in Venezuela were unwarranted if "character and tradition," "past behaviour and past performances" are of value. It is unfortunate, Dr. Escalante said, that North Americans consider the whole of Latin America as "one great conglomerate with one single tradition and one single code of laws, identical ethics and identical customs, all which are woven into one single political pattern of utter confusion."

"'Let us look at the record,' to use the words of one well known American; Venezuela has never repudiated her debts; Venezuela does not owe at present a single dollar in the foreign markets; Venezuela has no boundary problems; Venezuela is at peace at home and with the world."

Among those present at the luncheon were:

Humphrey Chadbourne, F. R. Coudert, Ramon Ayala, Eugene Black, Jacques Cohen, D. A. del Rio, J. C. Cuppia, Eric Drexel, James T. Duce, E. G. Diefenbach, Frank L. Crocker, Henry E. Cooper, Marc Fraser, W. C. Potter, Dr. Joseph E. Pogue, Sumner T. Pike, Charlton Ogburn, John L. Merrill, Alfred Meyer, Gould R. Moorhead, E. A. Pierce, Severo Mallet-Prevost, M. Johnson, Donald M. Grant, Joseph H. Himes, R. B. Haynes, Samuel M. Greer, Richard Jones, A. B. Lawrence, Grant Keehn, T. R. Doe, L. P. Maier, H. E. Jackson, Y. Maxudian, Huntington T. Sheldon, T. R. Berentsen, W. H. Schoeller, Charles G. Wray, George R. Walker, L. M. Williams, Jr., J. E. Rovensky, Edward Schuster, Frederick Warburg, Robert T. Swaine.

Venezuelan wildcat 25 miles from Quiriquire, 700 barrels

Standard Oil Company of Venezuela's Jusepin 1, a wildcat, was completed October 12, flowing 700 barrels of 31-gravity oil per day from 4820 feet.

Flow was through ½-inch choke.

Location is in the State of Monagas, Venezuela, 25 miles southwest of production in the Quiriquire field.

Under the Pantepec Oil Company of Venezuela and Standard Oil Company agreement, the seventh well will be drilled in the northern part of Pantepec's concession. It is on Lot 43, which contains about 25,000 acres, and is an offset to Gulf's Hato 13. The new well is to be 5 miles north of Pantepec-Standard's Tabasco 1, which is on a separate structure, near the center of Lot 43.

Colon Development Company has reported that its T-89 well at Tarra field (Las Cruces) Venezuela, was brought in recently, flowing at the rate of 310 barrels per day through an open line.

Philippine Islands

Discovery of commercial oil on Bondoc Peninsula culmination of long search in remote jungle area.

DISCOVERY of oil in commercial quantities in the Philippine Islands ended a long search in an area that showed unusual promise from a geological standpoint. The discovery well was completed by Far East Development Company on the Bondoc Peninsula, Tabayas Province, at 568 feet and the intital output of 200 barrels daily placed a new valuation on a large district.

Not since Richmond Petroleum Company, subsidiary of Standard Oil Company of California, hung up tools and quitclaimed its acreage in 1923, after failure to uncover oil in the narrow Bondoc Peninsula, which juts to the south from the northernmost island of Luzon, had any attempt been made to re-explore this area until two years ago.

A short time back, unknown to many identified in the petroleum industry, American capital again sponsored a search for oil and a new organization, Far East Development Company, was formed. It was headed by W. W. Harris, president, Patrick Hoover, vice president, and M. L. Coleman, director, all identified in the development of oil and mining properties in the Orient for many years.

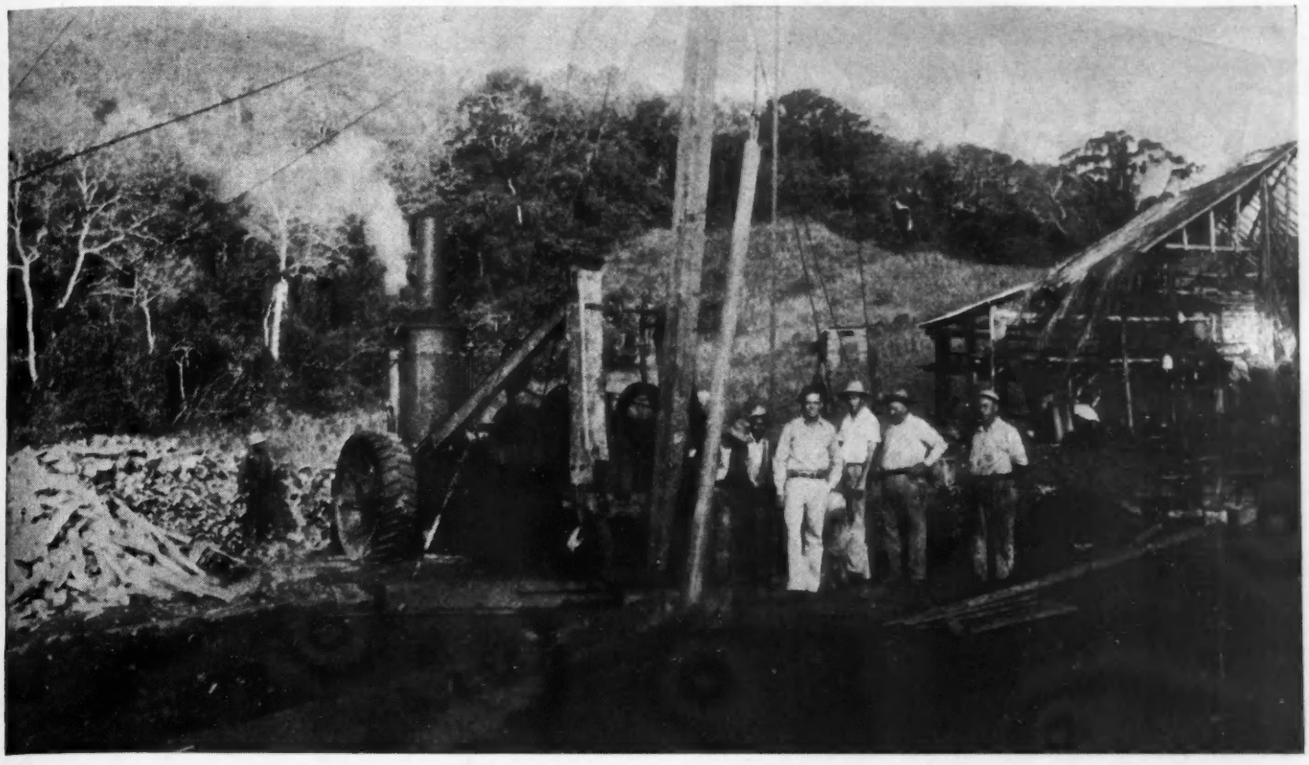
Their present play, which involves 75,000 acres (30,000 hectares) located on the eastern portion of the Bondoc Peninsula, 125 miles southeast of Manila, is a continuation of previous explorations on this peninsula where several of the early projects had been drilled and in which 50 gravity oil was found in oil seeps.

Grant Corby of Los Angeles, consulting geologist and geophysicist, was assigned the geological survey work for the company. In August, 1937, he boarded the China Clipper at Oakland for Manila. Here he organized his party of 18, including guides, trail blazers, interpreter, and assembled instruments and necessary survey equipment for the treck into the jungles.

Work In Jungle

The difficulties encountered by this exploratory group were related by Corby upon his return from the Phillippines. Five miles of road had to be built through dense jungle forest from the west coast of the Bondoc Peninsula to the site selected for drilling the first well. He described the heavy rainfall which proved to be a severe drawback in this construction work. Native labor was used exclusively in the construction of roads and clearing of jungles for preparation of drill sites. All drinking water had to be shipped in from Manila, and food eaten mostly from cans. Natives, however, lived off the land, as all they had to do was fish or pick cocoanuts or other fruit from the trees.

Corby described the property assembled by Far East Development Company as being anticlinal in structure with the dome extending down to a terrace, and then plunging again into a lower level. The top of the dome, the terrace, and the lower level included the three locations for tests. The company's first wildcat, Corby 1, was located on the top of this dome known as Mt. Magihi-Molave. It was the first



This view shows Corby 1 rigging up at first drill site selected by Far East Development Company. Jungle in background illustrates what these American oil men and geologists had to penetrate in making a survey of the area, not to mention difficulties in getting equipment to the drilling site.

drilling project in the islands since 1923, and was in charge of C. N. Nelson, of Los Angeles. A head driller joined the crew from California. Native crew made up the rest of the personnel. Corby 1 was spudded in February, 1938, but due to caving shale and other mechanical difficulties the hole was hung up at 450 feet. The rig was skidded several hundred feet and another hole started.

Modern steam rotary was used. The water supply on the islands is abundant because of constant rain. Philippine hard woods are plentiful for the building of derricks, and the jungles provide plenty of wood for fuel.

It was planned to explore to at least 2000 feet and possibly deeper to test the Conquinsa formation and the upper part of the Vigo shale, if necessary. The Vigo shale is similar to the California Monterey shale in age and appearance. It is supposed to be the organic shale that gives rise to origin of oil shown by the seeps in the vicinity. Limestones and sandstones very similar to the formations that are found in California oil fields are expected above 2000 feet. No great difficulty in penetrating these strata is expected, except perhaps the limestone, although this does not have great thickness. The structure controlled by the Far East Oil Company is well defined.

Early Search

Oil has been known to exist in the Bonodoc Peninsula for some years now but a number of factors have contributed to past failures. Lack of proper equipmnet has been the principal reason, while the scarcity of knowledge of the country has been a contributing cause. Earlier attempts to develop oil were made with water-well equipment and some of the early holes were even drilled by hand. Sickness from malaria, plus the jungle hazards may be included as natural causes which have retarded systematic search.

Early history of the land held by Far East Development Company is based on the memory of the natives in the vicinity. A story is told that as far back as 1906 a few wells were drilled by hand under the supervision of E. W. McDaniel for Tayabos Mutual Oil Association. One of these wells explored to 116 feet. It penetrated 62 feet of oil sand. Seven wells were found to have been drilled along the axis of the anticline and may have penetrated the Conquinsa formation or the Vigo shale. All were reported to have had oil. Water-well casing used to prevent the hole from caving or collapsing may still be seen. Corby says that it is doubtful that the early oil men used cement or circulation mud in these wells.

The only major company to have investigated the possibilities of commercial production in the Philippines was Richmond Petroleum Company. With modern equipment it drilled four wells in the southern portion of the Bondoc Peninsula, to the west of the present operations, between March 1921 and April 1924.

The company drilled its first test, Amogus 1, to 1323 feet. This test was spudded in March 1921 and was suspended in June of the same year. According to the log this project had a few showings of oil from 330-530 feet, but casing perforated at 210-230 feet, 510-560 feet, 820-860 feet, and 910-970 feet, seemed to indicate that other zones had been encountered in drilling to justify this work. The second test, Sapa 1, was spudded December 1921, and suspended in September 1923. This one explored to 3757 feet. The log revealed that some gravel, but for the most part blue sandy shale and gray water shale were encountered. Showings of gas were reported at 3455-3472 feet, and again at 3715-3721 feet. Pena 1, a third test, was spudded in June 1922 and suspended in April 1924 after exploring to 1571 feet. A brief casing history is listed for this well but no record of testing lower horizons is given. Intermittent showings of oil and gas were found from 75 feet to bottom. Gas zones were found at 1010-1019 feet and at 2913-2971 feet. This latter zone yielding 92,000 cubic feet of gas per day. Yebuan 1, the fourth project, was spudded in January 1923, south of Amogus 1, and prospects to 1614 feet. No comprehensive report is revealed in the log for this test. All of these tests are believed to have penetrated the Coquinsa formation or Vigo shale. Oil and gas did not appear in sufficient quantities for commercial production and the company quitclaimed the acreage.

In addition to the knowledge that oil exists in the northernmost island of Luzon it is believed that oil may also be found in other islands of the Philippine group. It is likely that exploratory measures will be started on other islands also. It may be pointed out that the same general formations that exist in Borneo, are found in the Philippine Islands.

Grant gas development concession in Mexico

Valley of Mexico natural gas exploitation is to be continued with the granting by President Cardenas of a concession to the Compania Perforadora Tulsa, S. A., for this work and marketing in the federal district.

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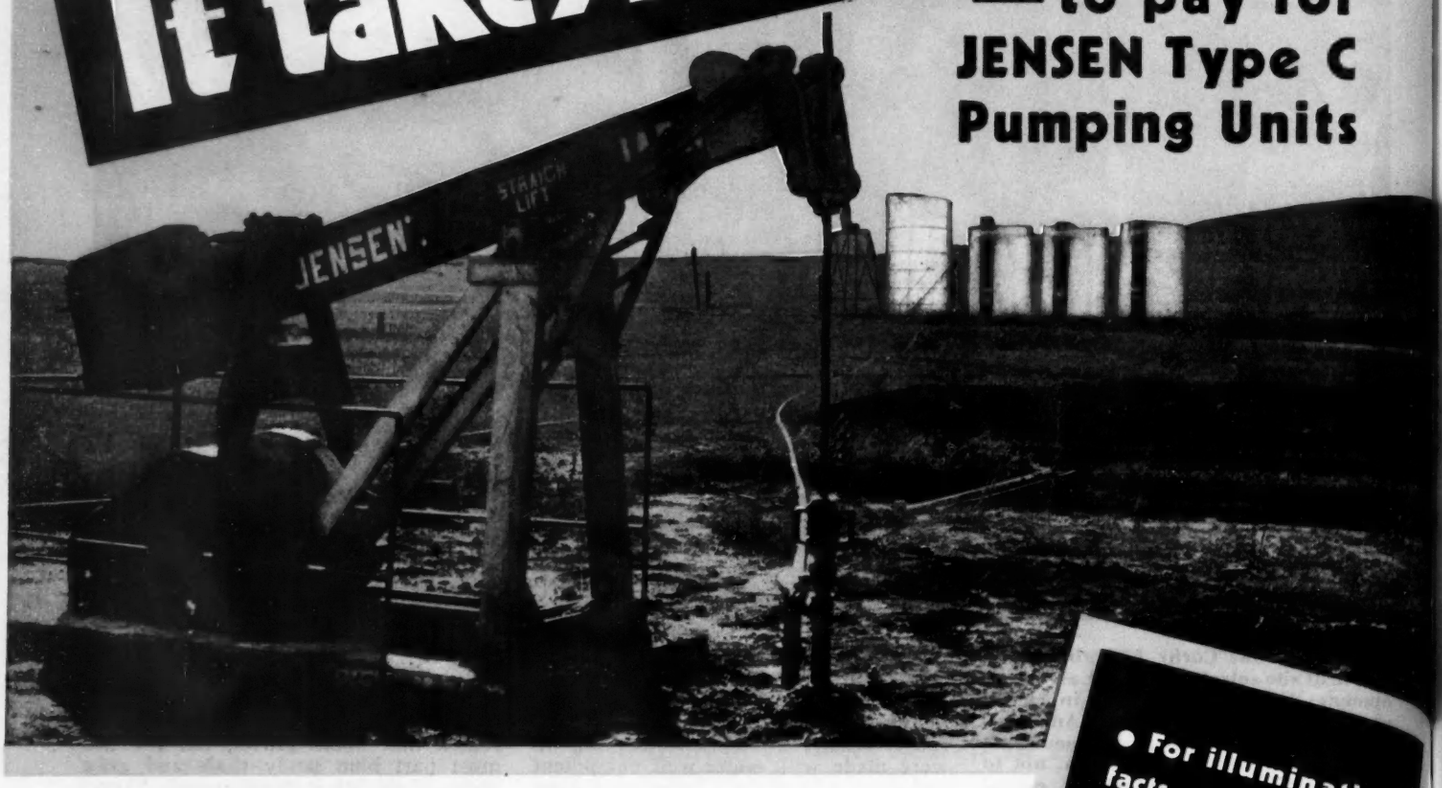

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ODESSA L. D. 683 Local 684	TULSA L. D. 681 Local 5-3204	OKLAHOMA CITY L. D. 785 Local 7-2725	WICHITA L. D. 59 and 116 Local 2-1431 and 2-1432	AND BRANCH STORES

MEN IN THE INDUSTRY'S NEWS

CHESTER C. CLARK, district geologist for Union Producing Company, was elected president of the Shreveport Geological Society for the ensuing year at the annual election at Shreveport October 7. He succeeds B. W. Blanpied. Leslie S. Harlowe, Grogan Oil Company, was elected vice president, succeeding E. B. Hutson, and Floyd Miller, Oliphant Oil Corporation, was named secretary-treasurer, succeeding J. D. Aimer.

SAMUEL S. ALEXANDER, Fort Worth operator, was in New York last week, having gone there by plane from Shreveport.

SAMUEL F. PRATT, European manager for Pennsylvania Grade Crude Oil Association who has been in the United States since July, was to sail late last week on the liner Bremen. Accompanied by his wife and two children, he will take up residence once more in London.

W. FRANK PRENDERGAST, assistant to the president of Imperial Oil Company, Ltd., last week was re-elected honorary treasurer of the Canadian Chamber of Commerce.

KURT H. deCOUSSER

VISCOUNT CHAPLIN, sailing from Quebec for England on the liner Empress of Britain last week, declared expropriation of British oil companies' property by the Mexican government has increased the importance of West Canadian oil fields to the British government. "That trouble in Mexico has brought Canada's western oil into a much more prominent place, both from a Canadian and Empire point of view," he said. "It is a young concern yet, but will go a long way." He added that construction of a pipe line from Alberta fields to Vancouver, British Columbia, by the British government was "definitely in the future," although present demand did not call for such a line.

LORD ASKWITH was re-elected president of Calmont Oils, Ltd., when directors held their annual meeting last week. Herbert Greenfield was named vice president of the Alberta operating firm, and J. Coxon secretary-treasurer. Directors are Sir William Cope, Sir Francis Price, Col. A. W. Pryce-Jones, Dr. L. A. Maxwell, R. G. Smith and G. W. Dover.

"SHORTY" CHANDLER, Alberta drilling contractor undergoing treatment at the Mayo Clinic at Rochester, Minnesota, is reported making good progress. His brother, George, who is active in United States fields, is assisting in Alberta.

A. H. CARPENTER, of Lexington, Kentucky, is president of Carpenter Drilling Company and of Lame Duck Oil Company, both of which were granted Illinois charters last week. Illinois headquarters will be maintained in Centralia.

H. L. BLACKSTOCK, San Antonio, Texas, is president and E. P. Myers, also of San Antonio, is secretary of Blackstock Oil Company which last week was given authority to do business in Illinois.

PAUL BARRETT, personnel director of Ohio Oil Company, Findlay, Ohio, last week discussed "The Advantages of Uncertainty" before the Foreman's Club at Huntington, Indiana.

deCousser heads Socony-Vacuum in Michigan

Kurt H. deCousser, since 1929 in charge of the Michigan geological division of Socony-Vacuum Oil Company, has been placed in charge of both the geological and producing divisions in Michigan.

E. A. Chester, who had been in charge of the Michigan producing division, has been transferred to Magnolia Petroleum Company, Socony subsidiary, and will head Magnolia's producing division in Illinois.

deCousser joined Socony in 1929, coming from Prairie Oil and Gas Company of Independence, Kansas.

LEAVITT CORNING, JR., geologist and geophysicist of San Antonio, Texas, was the principal speaker at the regular weekly meeting of the Houston Geological Society at the Lamar Hotel, October 13. His subject was "Geology of Goliad and DeWitt Counties, Texas."

PERRY OLCOTT, geologist for Humble Oil & Refining Company, Houston, was recently elected president of the Houston Geological Society. He was advanced from the position of vice-president of the society.

J. D. JOHNSON and C. J. ENRICH, both of Cato, Arkansas, head directors of Cato Oil Company, which was organized last week as an Arkansas corporation. Other directors are R. C. Smith, Joe C. Shuffield, E. F. Czichos, John R. Riley, L. E. Moore, T. Herndon, Joyce A. Herndon, E. B. Evans, T. E. Digby, M. L. Stanley, R. H. Evans, Sam Adkisson, A. R. Hembree and E. O. Lynn.

L. D. M. BAXTER, Winnipeg, Manitoba, was named last week to the directorate of the C. & E. Corporation, holder of

E. A. CHESTER

millions of acres of proven and prospective oil lands in Alberta. He succeeds the late C. F. Joyce, Winnipeg.

C. L. SUHR, chairman of the board of Pennzoil Company, sailed from Southampton, England, last week for New York, following an extended visit in Germany, Holland, France and England.

MAX PRAY, A. D. Pray and R. Tift last week organized Central Crude Company as an Illinois corporation with offices in Centralia.

S. F. SHAW, consulting engineer, has returned to Oklahoma City from a trip of gas-lift investigations to the Corpus Christi, Placedo and Hardin fields on the Gulf Coast.

C. BARRINGTON BROWN, geologist for Anglo-Ecuadorian Oilfields, Ltd., is studying formations on the west coast of Newfoundland which indicate the possibility of oil deposits.

ARTHUR P. MUHLBACH heads officers of Arthur P. Muhlbach, Inc., organized last week as a dealer in oil field equipment with headquarters in Olney, Illinois. Other members of the firm are H. P. Muhlbach and A. E. Butterfield.

EARLE W. GARD, for the past eight years development engineer for Shell Oil Company at San Francisco, has been named director of research and development.

DIED:

JOHN WILLIAMS DAVIS, 51, nationally-known chemist credited with developing the process for separating helium from natural gas, died in Petersburg, Virginia, on October 4. In charge of helium work for the United States Air Service during the World war, his discovery was made while with the United States Bureau of Mines between 1919 and 1925.

Tip to Hunters: Whiskers Deceive Game

Hunt for big game staged by four Texas oil men in an isolated district of British Columbia rewarded the quartet with an assortment of trophies and incidentally a crop of facial foliage rarely exposed in oil circles. The party, composed of (left to right) George Calvert, Broderick & Calvert, Fort Worth; J. M. (Jack) Loffland, Loffland Bros., drilling contractors, Fort Worth; Bert F. Weekley, president, Weekley Oil Corporation, Fort Worth; and (inset) John R. Suman, vice president of Humble Oil & Refining Company, Houston, returned during the past week after spending 6 weeks in making the trip to the Canadian hunting paradise.

Besides an assortment of birds and fish, the huntsmen killed big horn sheep, mountain goat, moose, caribou and grizzly bear. Their pack train required 42 horses. All contact with civilization was severed during their stay in the mountains. The huntsmen, acting on advice of their guides, allowed their whiskers to grow in order to deceive the hunted game.

Reelect Mid-Continent Association officers

Officers and directors of Arkansas-Louisiana Division of the Mid-Continent Oil and Gas Association were reelected Friday at the annual membership meeting in Shreveport.

L. M. Moffitt of Shreveport was reelected for the third consecutive year as president, with the following reelected vice presidents: D. W. Harris; Charles G. Laskey; J. R. McWilliams and C. R. Minor, all of Shreveport.

A. R. Campbell of Shreveport was reelected secretary-treasurer for the fifth consecutive year.

Directors reelected to serve on the general board were: T. H. Barton, El Dorado, Ark.; C. N. Black, Shreveport; A. R. Carmody, Shreveport; and Tinsley Gilmer, Lake Charles.

Safety declared to have economic advantages

"Complete understanding and wholesome application of the philosophy of safety is America's No. 1 Problem."

Offering a stream-lined version of the age-old law of self preservation, Capt. A. A. Nichoson of The Texas Company gave this concept of accident prevention as he outlined for delegates to the Petroleum Section of the Silver Jubilee Safety Congress and Exposition this afternoon the essentials of "A Company Training Program As An Aid in Accident Prevention."

The safety conference, marking the twenty-fifth year of the National Safety Council, is being held all week at the Stevens Hotel.

"A safety program is not the matter of choice that it might have been two decades ago," said Captain Nichoson. "Rather, it becomes a national necessity, and civic performance down through the ages has always remained a duty and not a choice.

"The factual and statistical background of safety in America seems to point to the fact that there is an urgent need for closer cooperation among the numerous units and agencies which have recognized the humanitarian and economic importance of this issue. For many years industry walked alone in the matter of safety, and to the countless millions engaged in the industrial empire it must be a tremendous satisfaction to know that their leaders, prompted by humanitarian instincts, pioneered in what today has become the greatest and most important movement in the world.

"Show the independent oil operators it is to their economic advantage and they will become interested in safety."

This is the opinion John E. Mitchell of Dallas, Texas, district engineer of the Hartford Accident and Indemnity Company, expressed.

"Efficient operation reflected in economic advantage is the only foundation sufficiently strong to support the structure of accident prevention work," said Mitchell, pointing out the necessity for preliminary investigation and fact finding efforts before an organization could be erected to promote safety.

"One of the most hopeless aspects

[*Continued on page 76*]

THE WEEK'S NEWS SUMMARIZED

Markets

The beclouded market outlook that has existed for several weeks turned into a rainstorm last week, when crude oil prices were reduced throughout the Mid-Continent and a second slash was handed out to Illinois, Kentucky and Michigan. The rain started falling when Texas prices were cut 12 to 18 cents a barrel, which was followed by corresponding reductions in Oklahoma and Kansas. Immediately Illinois, Kentucky and Michigan prices again were revised downward.

Many reasons have been advanced as the cause of the cuts, and they probably were the combined influence of several factors. Oil in Louisiana and Arkansas was being sold under posted prices and finding its way into Texas fields, probably because of lax proration quotas. Illinois production has grown from 25,000 to 85,000 barrels during the past year, and it has become necessary to apply pipe line proration as the number of producing wells expands considerably each week. This influenced the Oklahoma-Kansas situation, which is hemmed in on one side by Illinois and on another by Texas.

Moreover, gasoline prices since Labor Day have consistently slumped until they are about 20 percent below a year ago. Although crude storage has been drawn upon until it is at a 16-year low, it is still considered too high. Meanwhile, gasoline stocks are higher than a year ago and fuel oil stocks are at an all-time peak.

Allowables

Abandonment of Saturday and Sunday shutdowns as a means of preventing the loss of markets for Texas crude was suggested last week by the Railroad Commission, which asked operators to present evidence at the statewide hearing on this phase. Price cuts announced earlier in the week precipitated the suggestion. Lifting of Saturday and Sunday shutdowns would return fields in the state to a full 7-day week production schedule and would place 400,000 barrels additional oil on the market each day, which, it is generally thought, would cause another reduction in prices. Just now oil is being brought into Texas from Mexico, South America, Louisiana and Arkansas.

Offshoe Ownership

A bitter contest is foreseen between the federal government and the State of Louisiana to determine ownership of Timbalier Bay Islands. The War Department last week denied an application for permission to drill in the bay. The application was filed (because it is navigable water) by Gulf Oil Corporation, which leased the land from the state. Meanwhile, the federal government is advertising for bids on the island, which action has caused Louisiana officials to advertise their protest of title. It is anticipated that court action will be resorted to.

It is not generally believed that the federal government's action will be a forerunner for revival of the Nye Bill, which attempted to give title to all off-shore lands to the United States instead of individual states.

Pipe Lines

The proposed construction of a 2300-mile natural gas system from Kansas to Minnesota is to be opposed by at least five organizations when the federal power commission holds a hearing on the petition October 21. Those to oppose the serving of 128 communities are coal groups that are to claim it will injure their industry and cause unemployment.

Estimated cost of $25,000,000 for a crude pipe line from Turner Valley to the Great Lakes was declared last week to be worth this amount to Great Britain, as this would assure the nation a supply of oil in the event of war.

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Market Situation

Texas, Oklahoma and Kansas crude prices reduced while Illinois and Michigan receive their second cuts . . . Gasoline prices drop another ⅛ cent.

Markets settling down following crude cuts

The oil industry's markets have become fairly well stabilized at the lower price levels lately established for both crude and refined oils, although there remained late last week some fear of additional reductions, in view of the rapid fire second cuts of crude prices in Illinois and Michigan.

The second reduction in Illinois took 10 to 20 cents more off the posted prices, after the original cut a short time previously had lowered postings 10 cents. Consequently, Illinois Basin crude, which is competitive with Oklahoma-Kansas grades, is now down to $1.15 a barrel, as compared with $1.35 some weeks ago; while Oklahoma-Kansas crude similarly is down 20 cents a barrel.

Illinois-Oklahoma Situation

The Illinois and the Oklahoma-Kansas oils, therefore, are in the same relation to each other as previously, and there is some fear that the latter may have to be reduced again if Oklahoma and Kansas are not to sacrifice more of their markets.

The Illinois crude is purchased at a flat price of $1.15 a barrel, and is largely of 38 to 38.9 gravity. Oklahoma-Kansas crude of that grade, on the new schedule, is priced at $1.06 a barrel. Consequently, the Illinois crude is only 9 cents a barrel higher, and it therefore still enjoys a definite advantage in finding markets, as it requires around 20 cents a barrel to transport the Oklahoma-Kansas crudes to the Middle West consuming centers immediately adjacent to the Illinois fields.

Meanwhile, Illinois production continues steadily increasing, being currently around 85,000 barrels daily, and the Illinois producers are obliged in some instances to make price concessions to find buyers.

Under the circumstances, it is conceivable that the end has not yet been reached in the crude price adjusting in the Illinois and Oklahoma-Kansas fields.

Michigan Crude Market

Michigan, too, has felt the pressure of the Illinois oil on the markets, particularly because of over-production problems of its own, with new fields being opened. The crude price reductions of 10 to 13 cents a barrel in Michigan last week came swiftly on the heels of the earlier reductions ranging up to 9½ cents.

Furthermore, some other areas have been brought back through last week's crude price reductions into the same unsatisfactory relative positions that previously prevailed. For example, Arkansas and North Louisiana crudes formerly were cutting into Texas markets, and on top of that, the Arkansas-Louisiana prices were reduced; and in consequence, Texas prices were lowered similarly. However, with prices lower on both sides of the Texas border, the Arkansas-Louisiana fields still may be able to cut into the Texas markets, as before, the price cuts having been about the same for the separate districts.

Likewise, Oklahoma-Kansas crudes still are priced higher than crudes of Mid-Continent Texas, with only a state line separating the areas; indicating that the Oklahoma-Kansas producers may henceforth have some difficulty in sending their oil southward into the markets where lower prices rule, an action that becomes increasingly more necessary because of the greater difficulty of finding markets to the north and east in competition with the flush Illinois fields.

Texas Reductions

Different districts of Texas were variously affected by the sweeping crude price reductions last week, but the revisions of Humble Oil & Refining Company, largest Texas buyer, with pipe lines serving all sections of the state, averaged about 14 cents a barrel.

East Texas crude, which accounts for about 30 percent of all Texas production, was cut 15 cents a barrel, but it had been reduced 10 cents some weeks previously. Thus that oil has been cut 25 cents altogether, or from $1.35 to $1.10 a barrel.

Crude Cuts General

In its new schedule, posted effective October 11, Humble Oil & Refining Company also lowered New Mexico postings.

The reductions soon spread to Oklahoma and Kansas, where postings were cut 20 cents a barrel to the Rocky Mountain states, and to South Louisiana fields where prices had not already been cut, through the earlier revisions of Standard Oil Company of Louisiana and the reductions by Purchasers at Jennings.

Only California retains unchanged crude prices. Pennsylvania grade has not been cut in the past few weeks, but it has been repeatedly lowered in the past year.

Refined Oil Markets

While all these changes were being made in crude prices, the markets for refined products naturally were being watched anxiously, but they have held up comparatively well, although minimum quotations on gasoline at Mid-Continent refineries sagged another one eighth cent a gallon last week.

Prices for kerosene and fuel oils, on the other hand, have held unchanged.

Pipe line proration starts in Illinois

As a natural development of the rapid expansion of Illinois fields, pipe line proration has become necessary. Last week the Owensboro Corporation reduced its take from wells in the North Olney field, Richland County, to 100 barrels a well daily. The curtailment affects all wells except those of The Texas Company, which is handling its own production. The Owensboro company has cut its purchases in the Fayette County field to approximately 50 barrels a day and in the rapidly growing Lake Centralia field of Marion County to 250 barrels a well. The company has made similar restrictions effective in other areas, while Carter Oil Company is limiting its purchases in the Beecher City field to 40 barrels daily.

Besides The Texas Company, the only operator not seriously affected by present market conditions which make pipe line proration advisable is Pure Oil Company which is handling its production through its subsidiary, Wabash Pipe Line Company. This company is not expected to curtail its production as long as its demands make unrestricted production advisable. The proration steps are expected to maintain the market price for Illinois crude at $1.25 a barrel, and should go a long way toward forestalling restrictive legislation which is certain to be introduced at the January session of the state legislature.

CRUDE PRICES

New crude prices for all districts and fields, outside of California, are presented in tables appearing on page 64 of this issue. California prices the same as those that were published on page 67 of the October 3 issue of The Oil Weekly.

Refined product prices steady although lower

The markets for most of the refined products of the industry have remained comparatively steady in the face of the general disorder and confusion that arose from the widespread crude price reductions.

In fact, the range of prices of gasoline at Mid-Continent refineries has narrowed down considerably in the past week, indicating more agreement than previously on what prices should be.

Nevertheless, the narrowing down was on the lower ends of the previous wide ranges, and generally quoted bottom prices of gasoline in tank car lots are in some cases ⅛ cent a gallon lower than a week ago.

On the other hand, natural gasoline has not suffered any further decline, but on the contrary has shown some improvement, prices currently ranging from 2¾ to 3 cents a gallon, whereas

[*Continued on page 62*]

Allowable Picture

Outside oil causes Texas to study abandonment of shutdowns . . . Labor urges open flow or federal control of oil . . . Proration enters Illinois politics.

Thompson suggests lifting shutdowns to keep markets

Abandonment of the Sunday shutdown as a means of preventing the loss of market for Texas crude was suggested last week by Railroad Commission Chairman Ernest O. Thompson who asked that operators who intend to attend the Statewide Hearing on Saturday prepare to present evidence outlining their views on this question.

Thompson's action was precipitated by the price cut announced early in the week. He pointed out that the commission has never attempted to control price and that a reduction seemed to be the only method that would prevent foreign crude from entering Texas ports and competing at an advantage with Texas oil which is more costly.

Lifting of the Saturday and Sunday shutdowns, which would return the fields in the state to a full 7-day a week production schedule, would make available 400,000 barrels additional oil each day.

"Just now oil is being imported into Texas from Mexico, South America, Louisiana and Arkansas. This is shipping coal to Newcastle. This is done only because these oils have been made more available than Texas crude. We can correct this condition by making Texas crude oil available in greater quantities. More oil can be produced from Texas oil fields without causing physical waste.

"We must not do in oil what has has been done in cotton. Texas cotton markets were driven to South America and other places by artificial controls exercised here in the interest of prices. It has proved disastrous to our cotton markets in Texas. Texas must not let her rightful oil market get away from us. The oil can be produced without waste. We need the employment this extra production will bring to our state. Labor needs the pay that these two additional days of production will bring to them. Let's put these men back to work. * * *

"There is nothing strange about purchasers going to get their oil where it is most plentiful. Oil is plentiful in Texas. We should see to it that oil is made easily available in Texas in quantities large enough to care for all our markets. It should not be necessary for foreign oil to come into Texas. It should not be possible for anybody to take our customers away from us in the oil business in Texas.

"The commission has always raised allowable production anywhere and at any time anybody had a customer or a market if the oil could be produced without causing any excessive drop in reservoir pressure. In other words, if the oil can be produced without hurting the field we raise the allowable to meet all demands. Shall we let the store across the street take our business? It is up to Texas producers to get this business."

Thompson pointed out that some 400,000 barrels of Mexican crude had entered Gulf ports recently and the Mid-Continent Oil and Gas Association said that it had information indicating that one Texas refinery had contracted to purchase at a lower price some 7,000,000 barrels of the Mexican production.

CIO urges Federal control or lifting of proration

International Oil Field Workers Union (CIO) representatives conferred with Texas Railroad Commission Chairman Ernest O. Thompson Friday and offered federal control as a cure for the oil industry's problems.

Harvey Fremming and John Coulter urged Thompson to turn Texas loose, even though the result is 10-cent oil. This was Fremming's plan for a readjustment of markets if no other solution is offered.

Since Fremming has been invited to appear at the statewide proration hearing on Saturday, October 15, his remarks were taken as indicative of the views he would express there.

He asserted that there was no proration in Louisiana and that "the reported production is merely the oil upon which tax is paid." He declared that "everybody is moving to Illinois and Michigan."

"Federal control is the only thing that will ever make conservation effective," Fremming said. "It should aim to do three things: furnish an adequate supply of oil, insure a reasonable price, and guarantee reasonable wages and hours.

"I think you'll agree with me that the Interstate Oil Compact is a lot of hokum," commented Fremming. Thompson, chairman of the Compact Commission, is its most ardent defender.

"My boy," Fremming told Thompson of federal control, "you are going to get it whether you like it or not."

Fremming told Thompson that the commission should abandon shut-downs immediately after the hearing and then raise the allowable in East Texas.

Proration injected into Illinois political picture

Governor Henry Horner's stand on legislation to regulate the Illinois oil industry was forcibly injected into that state's political campaign last week when William R. McCauley, Olney, Republican candidate for state treasurer, charged the governor with "representing the major oil companies and misrepresenting the people of Illinois in placing in his last special legislative call bills, which if passed, would have placed huge tax burdens, prorations and regulations on the southern Illinois oil fields."

"As soon as the small independents began drilling, the big companies operating out of Oklahoma, Texas, Louisiana and Kansas who were sending millions of barrels of oil to the Illinois market, began to yell for regulation and proration in an attempt to curb the small fellow," McCauley said. "To please the big companies, Governor Horner placed in his call for the last special session of the legislature, bills for the proration, regulation and taxing of the Illinois fields."

He added that the governor was not true to his promises to the people of the state, in that "in an address given at Flora, Illinois, before the 1938 primary election he promised the people of southern Illinois that 'there would be no legislation regulating the oil development in Illinois'."

Despite this promise, McCauley added, the governor placed bills calling for regulation of the industry in his special session call.

"I charge," he declared, "that the driller had hardly hit the pay sand in the southern Illinois oil fields when the tax sharks from Springfield were upon the job, looking over this industry with the idea of taking from you people additional taxes to replenish their already filled tax barrels. These additional taxes would mean only one thing —additional wasteful and extravagant handling of the people's money."

McCauley cited the Republican platform which declares "there shall be no proration, regulation or taxation on the oil development in Illinois until such time as production in Illinois equals consumption."

Oklahoma hearing is set for October 26

Hearing to determine allowable for Oklahoma oil fields for November will be held by the Oklahoma Corporation Commission at Oklahoma City, October 26. The October figure, 428,000 barrels daily, likely will be continued.

Arkansas adjusts field allowables

A top allowable of 15,000 barrels daily was set for Jones sand producers in Schuler by the Arkansas Board of Conservation at a hearing Friday. The new allowable will be effective Sunday, October 16, and continue until November 1. There are 86 Jones sand producers.

At the same time, the board reduced the per well allowable of the field's Permian Lime producers from 300 barrels to 200 barrels daily.

In Rodessa, the board set a top allowable of 200 barrels for wells on 20 acres, 150 barrels of those on 10 acres and 100 barrels for wells on 5 acres or less.

The board announced that the field will not be closed down for 7 days in order that a series of test scan be made, but that the field will be closed down by areas.

Oil at Capitols

Louisiana will wage bitter battle for ownership to lands federal government advertises for lease.

Louisiana contests federal title claim to Timbalier Bay

Bitter contest over the title to oil-bearing lands on islands in Timbalier Bay, La., was foreseen in Washington last week as both the Federal Government and the State of Louisiana prepared to protect their respective alleged rights.

As first step in the move to oust the state from possession of the lands, the War Department last week, at the request of Secretary of the Interior Harold L. Ickes, denied an application for permission to drill two wells in the bay, filed by Gulf Oil Corporation, which holds leases secured from the state.

(The Gulf's application for permit to drill specified that the well was to be drilled in the water, and not on the island, which is why the permit was sought from the War Department. Whether or not the War Department confused the marine lease with the Island lease is not known. If there was no such confusion, it would appear that Ickes intends to lay claim to the water as well.—Editor.)

Simultaneously it became known in Washington that Louisiana was serving warning upon all persons and interests who might seek to secure leases from the Federal Government that it did not recognize the title of the United States.

Long considered to rest with the state, the title to the Louisiana bay lands was not seriously questioned until last spring, when applications for leases on East Timbalier Island were filed with the Interior Department, it was stated in Washington.

The state authorities filed a protest against the issuance of leases in June and, following a hearing at which the applicants, state authorities and private companies involved were heard, the general land office issued a decision, affirmed by Secretary Ickes, that title to the land was vested in the Federal Government.

The applications which precipitated the controversy were rejected by the department on the ground that the land was located within a known geologic structure of a producing oil field which, under the law, must be disposed of by competitive bidding, rather than through private league. Such bids are now being advertised for, to be opened October 31.

Government Cites Basis

The decision of the department that the lands were possessions of the Federal Government was based on findings that the island has been treated by the United States as public land continuously since 1837, when it was located by surveyors of the Federal Government. Three presidents, it was pointed out, have taken formal action premised on the island being federal property; President Tyler in 1844 ordering it included in a military reservation; President Cleveland in 1886 placing it under the control of the Department of the Interior and President Roosevelt in 1907 designating it as East Timbalier Island Bird Reservation.

"Until the State of Louisiana first protested the issuance of leases by letter of its attorney general to this department, dated June 8 of this year," Secretary Ickes declared, "it had at no time asserted ownership of, or jurisdiction over East Timbalier Island or its adjoining islands, nor had it in any manner, expressed or implied, ever denied the ownership of these lands or the exercise of jurisdiction over them by the United States."

Denial of the Gulf Oil application by the War Department is in line with Secretary Ickes' decision that the lands belong to the government. The granting of the permit, it was pointed out, would have admitted the state's claims to the land, since the company secured its leases from the state.

Expect Court Action

With the position of the Federal Government clearly defined by the Interior Department decision and the offering of the lands for lease, the next move is seen in Washington as up to Louisiana authorities, who appear to be paving the way for court action by formally warning prospective bidders, by appropriate advertising, that it does not recognize the claim of the government and will contest the validity of any lease granted by Secretary Ickes.

(Advertisements of the both the Federal Government, which calls for bids on East Timbalier Island, and the State of Louisiana, which protests the action of the Federal Government, appear in this issue of THE OIL WEEKLY.)

The controversy between the department and the state is not generally considered evidence of the government's intention to seek to secure possession of the underwater oil lands, as contemplated in legislation which failed in the House of Representatives at the last session of Congress.

In this particular instance, it was pointed out, there have been in the past specific actions by the Federal Government with respect to the lands in question, which have never been contested, so far as can be ascertained.

So far as can be learned, no decision has yet been reached by administration officials whether to renew the effort to pass the Nye bill during the coming session of Congress or attack the problem from another direction—similar to that taken in the Louisiana case. The Nye bill, asserting title to the California submerged lands, was passed by the Senate in 1937; it failed in the House, after it had been revamped to cover not only the California offshore fields but also the Gulf waters and Atlantic coast, because of the opposition of Gulf and Atlantic interests, the former contending that there was no question to the State's title because of provisions in the treaties under which the states came into the Union and the latter protesting that the bill would imperil the amusement developments at Atlantic City and other shore resorts.

While the Interior Department did not contest the Nye bill and, in fact, worked for its adoption when it was before the House, the major fight for the legislation was waged by the Navy Department, which sought to secure the California submerged lands for a naval petroleum reserve. Secretary Ickes, in fact, held consistently to the contention that there was no question but that title to the lands lay with the United States. At no time did the Navy Department express more than passing interest in the Gulf lands, although it was admitted they would be a welcome addition to the naval reserves.

Regardless of whether the legislation is revived next year, there is a possibility that the Louisiana controversy may do much to settle the question of title to the lands lying between low water mark and the three mile limit.

Oil in the Courts

Government seeks to invoke new statute to bring Gulf official to Madison . . . Retrial dates are set.

Madison trust retrials are set for next May

Federal Judge Walter C. Lindley, Ocober 14, tentatively set retrial of three major oil companies and 15 oil company executives for May 8, 1939. The trial date was set at a conference between government attorneys and defense counsel at Chicago. The trial will be held in Madison, with Judge Lindley presiding.

Attorneys last week expressed belief that a United States Circuit Court of Appeals ruling may be had before the opening of the trial on a defense appeal on behalf of 12 other companies and five individuals who were found guilty of violation of the anti-trust law and fined a total of $65,000. Should the appeals court order a new trial for these defendants, it also would be held next May, it was indicated last week.

In another action before the Chicago appeals court, government attorneys are seeking retrial of one company and 10 oil company officials who were freed by Federal Judge Patrick T. Stone following a jury verdict of guilty returned last winter. A mandamus action brought by government attorneys, returnable October 24, asks Judge Stone to explain why defendants released should not be retried.

Meanwhile in Philadelphia, Department of Justice officials sought to invoke a new statute in an effort to bring William V. Hartman, vice president of Gulf Oil Corporation, Pittsburgh,

into the jurisdiction of the Madison court. The United States Circuit Court of Appeals was asked to invoke a statute passed last June abolishing appeals by defendants in extradition proceedings.

Hartman had appealed from a federal district court ruling handed down in Pittsburgh remanding him to trial in Madison. The appeal was argued last June, but as yet no decision has been announced.

John Henry Lewin, special assistant attorney general who took part in prosecution of major companies in Madison last winter, argued that the appeal motion should be dismissed in line with provisions of the new statute.

David A. Reed, former United States Senator and counsel for Hartman, argued that the abolition statute did not apply in the present case as it was passed three weeks after the appeal was taken.

Decision was reserved by the court.

Oklahoma well spacing to get Supreme Court hearing

Constitutionality of Oklahoma's well-spacing law will be determined in the near future by the United States Supreme Court, which on October 10 consented to review a lower court decision in the case of Patterson v. Stanolind Oil & Gas Company.

Court cracks Pennsylvania utility regulation

A severe blow to regulatory activities of the Pennsylvania public utility commission was suffered last week when a three-judge statutory court sitting at Philadelphia declared unconstitutional a section of the state public utility act which authorized the commission to set temporary rates pending the fixing of new tariffs. The power, which the commission had been exercising, applied to gas companies as well as other public service firms.

The court held that a rate based on "original cost" of a company's property, which procedure had been followed by the commission, was "confiscatory," the opinion adding that permanent improvements, the market value of stocks and bonds and the "present" value of the company's properties must be taken into account.

Judge Davis said that a rate based only on original cost "must, in many, if not all instances, be confiscatory."

"The commission seeks to avoid this inevitable conclusion and the constitutional infirmities of the act by saying that it does not limit the commission in finding fair value to the consideration of the one element of original cost," the opinion declared. "It argues that because it 'may', not 'must' consider the one element only, the constitutionality of the act is saved. In other words it contends that the test of the constitutionality of an act depends upon the exercise, and not upon the grant of power. The constitutionality of an act, it says, depends upon what is done, and not upon what may be done, under it. If this contention be true, the constitutionality of an act depends upon the will of men and not upon the rule of law. The mere statement of this contention shows its infirmity."

Pipe Line News

At least five coal groups will protest against the building of interstate gas trunk lines into Minnesota when federal power commission meets next week.

Coal interests to protest proposed 2300-mile gas line

At least five organizations will protest against granting permission for construction of a 2300-mile natural gas pipe line from Kansas to the Mesaba and Cuyuna iron ranges of Minnesota when the federal power commission hears oral arguments October 21 on a petition of the Kansas Pipe Line and Gas Company, it became evident last week.

The proposed line, which would cost an estimated $21,470,000, would serve 128 communities in five states. An application has been made to the Reconstruction Finance Commission for a $20,000,000 loan for the project.

Opposing groups contend construction of the line would be a serious blow to the coal industry and the railroads, further complicating the unemployment problem. They are: the National Bituminous Coal Commission, the National Coal Association, the United Mine Workers of America, the Northwestern Coal Dealers Association, and the Maher Coal Bureau.

The National Coal Association is also opposing a proposed, $50,000,000 line to bring natural gas from Wyoming and Montana fields to South Dakota, Minnesota and Wisconsin, for which an application for a certificate of convenience and necessity has recently been filed with the power commission.

Coal interests see in the natural gas proposals a serious threat to their northwest market. J. V. Sullivan, secretary of the West Virginia Coal Association, announced that a minimum of 15,000,000 tons of West Virginia coal are used in the states that would benefit from the proposed pipe lines and that several million tons of this market would be lost if the projects are consumated. Protests on approval of the RFC requests for loans will be made on the ground that government financing should not be used to build up one industry at the sacrifice of another.

Says $25,000,000 Canadian line is worth it to Britain

Estimated cost of $25,000,000 for a crude oil pipe line from Alberta fields to Fort William, Ontario, head of the Great Lakes, from which point it could be shipped by tanker to East Canadian refineries, would be inconsiderable compared with the immense value of an assured supply of oil for the British Empire in the event of war, Walter S. Campbell, executive member of the Alberta Petroleum Producers' Association, declared in an address at Calgary, Alberta last week.

Declaring that the estimated cost of a pipe line "wouldn't carry on a World war for one day," Campbell asked: "What's $25,000,000 to the British Empire to secure its oil supply?" He added that he hoped there never will be any war, "even if we never get a cent out of oil."

"We had men of sufficient courage to pioneer the development of crude oil in the west," Campbell declared. "We will have men of sufficient courage to continue that development and secure markets.

"Every country must develop its 'gifts of nature' and exchange them with other countries. The rapid development of our oil resources is our responsibility. Development of our own oil resources will be Canada's contribution to the peace of the world."

Illinois town will tax pipe lines by the rod

The city council at Centralia, Illinois, last week cleared the deck for passage this week of a pipe line ordinance providing that companies be assessed a tax of 50 cents a rod for 2-inch pipe lines and $1.00 a rod for lines over 2 inches the first year, with an annual payment of 25 cents a rod on all sizes after the first year.

Minor revisions in the ordinance, which had been under consideration since last May and follows townlot development in Centralia, precluded its final passage last week.

Oklahoma gathering system in Illinois in operation

A gathering system to serve the Loudon or Beecher City field of Fayette County, Illinois, has been placed in operation by the Oklahoma Pipe Line Company. Crude is being delivered from the field through a 10-mile 6-inch welded line to a 10,000-barrel tank at the Brownsville station of Illinois Pipe Line Company.

From a pumping station 18 miles west of Effingham, an 8-inch gathering line extends north and east through the field. Four-inch laterals connect the main gathering line with tank batteries. The system is taking about 1500 barrels daily and will be enlarged with the need for a larger outlet.

Transfer ownerships of Texaco Illinois line

The Texas Company last week transferred ownership of a proposed 70-mile crude oil pipe line from the Salem field of Marion County, Illinois, to Lawrenceville to Central States Pipe

[Continued from page 58]

Line Company with approval of the plan given last week by the Illinois Commerce Commission.

The line, for which right-of-way has been secured and construction started by Williams Brothers Construction Company, will serve as a common carrier and traverse Marion, Clay, Richland and Lawrence counties. The Central States company, an Illinois corporation, is to file a schedule of rates later, the commission announced.

Atlantic extends line and purchases in New Mexico

Hobbs, N. M.—Atlantic Pipe Line Company has extended its Lea County system to the Monument field through the construction of a 5-mile combination 6- and 4-inch lateral line from its Hobbs-Eunice trunk line. The unit will handle 2000 barrels of crude daily to be purchased by Atlantic Petroleum Purchasing Corporation from leases heretofore served by The Texas-New Mexico Pipe Line Company and other buyers in the Monument area.

Atlantic buying more oil in Ward County

Midland, Texas.—Atlantic Petroleum Purchasing Corporation, largest crude purchaser in Ward County, Texas, has contracted for an additional 3300 barrels daily in the Estes area, and Atlantic Pipe Line Company has completed the necessary connections. This oil was formerly handled by Gulf Refining Company.

Magnolia lines valued at $41,200,000

Magnolia Pipe Line Company's properties owned and used for common carrier purposes was tentatively valued by the Interstate Commerce Commission at $41,200,000 as of December 31, 1934. Forming an integral part of the Socony-Vacuum Corporation's system, the Magnolia company's pipe lines are located in Texas, Oklahoma, Louisiana and Arkansas.
700,000 as of the same date on properties of the Tide-Water Pipe Company, Ltd., operating in Illinois, Indiana, Ohio, Pennsylvania, New Jersey and New York.

August crude runs to stills were higher

Average daily crude runs to stills in August advanced to 3,269,000 barrels. An increase of 48,000 barrels over July but 126,000 barrels under August, 1937, it was reported by the Bureau of Mines October 13.

Total receipts of crude oil at refineries for the month were 101,352,000 barrels, of which 99,903,000 was domestic and 1,714,000 barrels foreign, the latter's daily average of 55,000 barrels being 28,000 barrels under the July figure. Total runs to stills were 101,352,000 barrels, and fuel and losses 118,000 barrels.

the price before was generally 2¾ cents.

Also on the favorable side were increases of ⅛ cent a gallon in kerosene tank car prices in the Chicago district as well as a similar adavnce in the minimum prices of range oil.

Natural Gasoline

Natural gasoline grade 26-70, was priced generally in the Mid-Continent markets f.o.b. refineries at 2¾ to 3 cents a gallon, and sales were reported at the same prices f.o.b. Breckenridge, Texas.

Gasoline at Refineries

U. S. motor gasoline ranged in the Oklahoma market last week about as follows: 62 octane and below 3¾ to 4¾ cents a gallon; 63 to 66 octane, 4⅛ to 4½ cents; 67 to 69 octane, 4⅜ to 4⅞ cents; 70 to 72 octane, 4⅝ to 5½ cents.

Corresponding prices in the Chicago markets were 3½ to 4⅜ cents, 4 to 4⅞ cents, 4¼ to 5 cents and 4⅜ to 5⅛ cents.

In East Texas the most common gasoline, 60-62, 400 end point, was priced generally at 4½ cents a gallon.

Kerosene prices f.o.b. Oklahoma refineries ranged from 4¾ to 4¼ cents a gallon for the 41-43 water white grade, and from 4 to 4⅝ cents for the 42-44 water white grade; and corresponding prices in the Chicago market were 3¾ to 4⅜ cents and 3¾ to 4 cents.

Fuel oil prices were not materially changed in the past week. In the Chicago market range oil was priced from 3¾ to 4 cents a gallon. The No. 1 white oil was priced from 3⅝ to 3⅞ cents, and No. 1 straw from 3⅝ to 3¾ cents. No. 2 straw was 3½ to 3⅝ cents. No. 3 oil was 3¼ to 3½ cents. No. 5 oils were 60 to 70 cents a barrel. The No. 6 oil was quoted at 35 to 50 cents.

"Blessed" East Texas oil sells for 30 cents a barrel

Ample supply of confiscated crude and semi-refined products to meet the requirements of East Texas refineries until next spring has been released by the state through a series of sheriff's sales conducted in recent weeks. The sales are conducted on district court orders obtained by the attorney general's department, and no penalties have been imposed for producing or possession of the illicit production.

A. V. Riley, Kilgore operator, purchased 204,602 barrels of miscellaneous products, including the equivalent of fresh crude, in making a bid of 28 cents per barrel for the lot. Five prior bids ranged upward from 15 cents. The oil is stored in steel tanks in Gregg County. H. R. Burden purchased 53,045 barrels of confiscated oil at sheriff's sale held October 8 at Henderson. This illegally produced petroleum was sold for 30 cents per barrel.

Refined products derived from the state's "blessed" oil and the fuel oil will be marketed in competition with legally produced products within the state. The federal tender board, with the aid of the Connally Act, prevents the products from reaching interstate commerce.

Barnsdall plant may continue to operate

Continued operation of the Barnsdall, Oklahoma, plant of Barnsdall Refining Corporation depends on acceptance of one-eighth royalty instead of one-sixth by the Osage Indian Council. The corporation and producers in Western Osage County have agreed on selling oil at a low of 69 cents for 29 gravity and below and a top price of $1.05 for 40 gravity and above.

The plant was scheduled to close October 15 but the agreement brought hope of continuing the outlet for 4000 barrels daily from 6000 oil wells, if the Indian Council and Department of Interior agree to the adjustment of royalty interest.

Favorable trends shown by weekly statistics

The latest weekly statistics of the petroleum industry indicated a continuation of generally satisfactory trends. Crude oil production remained materially below the prevailing market demand. Crude runs to refinery stills were substantially reduced. Gasoline stocks increased much less than normally for the season. Fuel oil storage was increased only seasonally. Crude stocks rose about one-half million barrels, but still were near the 16-year low.

United States crude oil production in the week ended October 8 averaged 3,249,350 barrels daily, having increased about 18,000 barrels from the previous week's level. But the output was still about 117,000 barrels under indicated market demand, as estimated by the Bureau of Mines. The production at the new rate was 9.2 percent lower than in the corresponding week last year.

Crude oil runs to stills in the week ended October 8 averaged 3,205,000 barrels daily, having been curtailed 30,000 barrels below the previous week's rate. The runs were 4.3 percent lower than in the comparable week last year.

Gasoline stocks, formerly declining, were increased about 100,000 barrels in the week of October 8, having risen to 68,706,000 barrels. That was a comparatively small addition, as this is the season of normally expanding stocks. The gasoline supply now is 4.8 percent larger than a year ago.

Fuel oil storage was increased again about 500,000 barrels in the week ended October 8, having risen to 152,275,000 barrels, a new peak. That amount was 28.9 percent larger than the quantity held at the corresponding time last year.

Crude oil storage was increased

CRUDE OIL PRICE SCHEDULES

(Posted October 11-13, 1938)

MID-CONTINENT GRAVITY SCALE PRICES

(Some fields of Mid-Continent have flat price postings, and are shown separately).

GRAVITY	[7]Okla.-Kans.	North La.-Ark.	North & W. Central Tex.	East Central Tex.	Gray Co. Tex.	Carson Hutchinson Co. Tex.	[1]Tomball Tex. Type	West Tex.-N. Mex.	[2]Gulf Coast (Tex.-La.)	[3]Some La. Gulf Areas	[4]Anahuac, Tex. Type	[5]Refugio, Tex. Type	[6]Mirando, Tex. Type
17–17.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18–18.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
19–19.9	.....	.....	.....	.....	.....	.....	.....	*$0.53	*$0.79	*$0.79	*$0.74	*$0.79	*$0.74
20–20.9	$0.60	.....	.....	.....	.....	.....	.....	.55	.82	.82	.77	.82	.77
21–21.9	.63	.....	.....	.....	.....	.....	.....	.57	.85	.85	.80	.85	.80
22–22.9	.66	.....	.....	.....	.....	.....	*$0.95	.59	.88	.88	.83	.88	.83
23–23.9	.69	.....	.....	*$0.78	.....	.....	.97	.61	.91	.91	.86	.91	.86
24–24.9	.72	*$0.73	*$0.71	.80	.....	.....	.99	.63	.94	.94	.89	.94	.89
25–25.9	.75	.75	.73	.82	.....	.....	1.01	.65	.97	.97	.92	.97	.92
26–26.9	.78	.77	.75	.84	.....	.....	1.03	.67	1.00	1.00	.95	1.00	.95
27–27.9	.81	.79	.77	.86	.....	.....	1.05	.69	1.02	1.02	.97	1.02	.97
28–28.9	.84	.81	.79	.88	*$0.72	*$0.67	1.07	.71	1.04	1.04	.99	1.04	.99
29–29.9	.87	.83	.81	.90	.74	.69	1.09	.73	1.06	1.06	1.01	1.06	1.01
30–30.9	.90	.85	.83	.92	.76	.71	1.11	.75	1.08	1.08	1.03	1.08	1.03
31–31.9	.92	.87	.85	.94	.78	.73	1.13	.77	1 10	1.10	1.05	1.10	1.05
32–32.9	.94	.89	.87	.96	.80	.75	1.15	.79	1.12	1.12	1.07	1.12	1.07
33–33.9	.96	.91	.89	.98	.82	.77	1.17	.81	1.14	1.14	1.09	1.14	1.09
34–34.9	.98	.93	.91	1.00	.84	.79	1.19	.83	1.16	†1.16	1.11	1.16	1.11
35–35.9	1.00	.95	.93	1.02	.86	.81	1.21	.85	1.18	.....	1.13	1.18	1.13
36–36.9	1.02	.97	.95	1.04	.88	.83	1.23	.87	1.20	.....	1.15	1.20	1.15
37–37.9	1.04	.99	.97	1.06	.90	.85	1.25	.89	1.22	.....	1.17	1.22	1.17
38–38.9	1.06	1.01	.99	1.08	.92	.87	1.27	.91	1.24	.....	1.19	1.24	1.19
39–39.9	1.08	1.03	1.01	1.10	.94	89	1.29	.93	1.26	.....	1.21	1.26	1.21
40 and above	1.10	1.05	.....	1.12	.....	.....	.....	.95	1.28	.....	.....	.....	.....
40–40.9	.....	.....	1.03	.....	.96	.91	1.31	.....	.....	.....	1.23	1.28	1.23
41–41.9	.....	.....	1.05	.....	.98	.93	1.33	.....	.....	.....	1.25	1.30	1.25
42–42.9	.....	.....	1.07	.....	1.00	.95	1.35	.....	.....	.....	1.27	1.32	1.27
43–43.9	.....	.....	1.09	.....	1.02	.97	1.37	.....	.....	.....	1.29	1.34	1.29
44–44.9	.....	.....	1.11	.....	1.04	.99	1.39	.....	.....	.....	1.31	1.36	1.31
45 and above	.....	.....	1.13	.....	1.06	1.01	1.41	.....	.....	.....	1.33	1.38	1.33

*Minimum price and applies also to purchases of lower gravity.

†Maximum price and applies also to purchases of higher gravity.

[1] Tomball, Raccoon Bend (Deep Sand) and Satsuma.

[2] Includes Goose Creek, Sugarland, West Columbia, Thompsons, Mykawa, Amelia, Webster, and Clear Lake fields.

[3] Includes Berwick, Bay St. Elaine, Caillou Island, Dog Lake, Four Isle, Gillis, Horseshoe Bayou, Iberia, Jefferson Island, Lake Barre, Lake Pelto, Leesville and Port Barre fields.

[4] Anahuac, Dickinson, Gillock, Cedar Point, Fairbanks, Turtle Bay, Hull, Liberty, Orange, Pierce Junction, Barbers Hill and Raccoon Bend (shallow sand) fields.

[5] Includes Saxet, Greta, O'Connor-McFadden, Taft, Plymouth and Tom O'Connor fields.

[6] Includes Duval, Jim Hogg, Jim Wells, Webb and Zapata counties, Texas, and Heyser and Placedo fields.

[7] Magnolia Petroleum Company's Oklahoma schedule.

Mid-Continent Flat Prices

	Flat Price	Date Posted
Arkansas:		
Smackover	$0.73	10–12–38
Louisiana:		
Garden Island	1.24	10–12–38
Lafitte	1.04	10–12–38
Texas:		
East Texas	1.10	10–12–38
Talco	.55	10–12–38
Livingston, Cleveland	1.10	10–12–38
Van	.93	10–12–38
Pettus	1.29	10–12–38
Pecos County	.78	10–12–38
Pecos Shallow	.65	10–12–38
Luling	.87	10–12–38
Lytton Springs	.99	10–12–38
Salt Flat, Darst Creek, Hilbig, Carroll, Clark and Zoboroski	.96	10–11–38
Flour Bluff	1.27	10–11–38
Seabreeze, Willow Slough, La Belle, Hardin	1.00	10–13–38
Clay Creek	.85	10–13–38
Conroe	1.27	10–11–38

Middle West Prices

Lima, Ohio	$0.90	10–13–38
Illinois	1.05	10–13–38
Illinois Basin	1.15	10–13–38
Centralia, Illinois	1.15	10–13–38
Princeton, Indiana	1.05	10–13–38
Western Kentucky	1.10	10–13–38
Kentucky River, Eastern Kentucky	1.40	7– 1–38
Big Sandy River, Eastern Kentucky	1.32	7– 1–38

Michigan Prices

	Flat Price	Date Posted
Porter, Greendale, Crystal	$0.92½	10–13–38
Buckeye, Bentley, Edenville and Beaverton	.90	10–13–38
Freeman	.87	10–13–38
West Branch and Arenac	.74	10–13–38

Rocky Mountain States Prices

Colorado:		
Ft. Collins and Wellington. Light	$1.01	1–28–37
Ft. Collins and Wellington, Heavy	1.25	1–28–37
Cannon City and Florence	1.10	1–28–37
Iles, Light	.98	10–11–38
Iles, Heavy	.92	10–11–38
Montana:		
Cat Creek	1.30	1– 1–38
Cut Bank	1.35	6– 3–36
Pondera	1.05	9–29–33
Sunburst	.90	11–16–37
Wyoming:		
Big Muddy	1.18	1–28–37
Elk Basin	.90	10–11–38
Frannie, Light	.55	10–11–38
Frannie, Heavy	.42	10–11–38
Grass Creek, Light	.90	10–11–38
Grass Creek, Heavy	.40	10–11–38
Hamilton Dome	.35	10–11–38
Lance Creek	.77	10–11–38
Osage	1.30	1– 1–37
Rock Creek	1.00	10–11–38
Tensleep	.646	10–11–38
Salt Creek, Dalton Creek, Midway: Oklahoma gravity scale	....	10–11–38

Pennsylvania Prices

	Flat Price	Date Posted
Bradford-Allegheny	$1.68	9– 1–38
National Transit Lines	1.68	9– 1–38
Sw. Pa. Pipe Line	1.34	9– 1–38
Eureka Pipe Line	1.28	9– 1–38
Buckeye Pipe Line	1.18	9– 1–38
Corning Grade, Ohio	1.07	9– 2–38

Major Price Changes

	Penna. (Nat. Tr.)	Mid-Cont. (36 Gr.)	Calif. (26 Gr.)
June 19, 1933	Up 10	Up 19	.....
June 26, 1933	Up 10	.....	Up 9-12
July 6, 1933	Up 13	Up 10	.....
July 17, 1933	Up 15	.....	.....
July 28, 1933	Up 15	.....	.....
Aug. 11, 1933	Up 10	.....	.....
Aug. 24, 1933	.....	Up 10	.....
Aug. 30, 1933	Up 15	.....	.....
Sept. 6, 1933	Up 10	Up 10	Up 15
Sept. 8, 1933	.....	Up 15	.....
May 1, 1934	Up 10	.....	.....
Nov. 6, 1934	Cut 25	.....	.....
Dec. 6, 1934	Cut 25	.....	.....
Jan. 4, 1935	Up 15	.....	.....
Feb. 4, 1935	Up 15	.....	.....
May 16, 1935	Cut 15	.....	.....
June 26, 1935	Cut 15	.....	.....
July 16, 1935	Cut 10	.....	.....
Aug. 29, 1935	.....	.....	Cut *1
Sept. 6, 1935	Up 5	.....	.....
Oct. 29, 1935	Up 15	.....	.....
Nov. 1, 1935	.....	.....	Up *28
Nov. 18, 1935	Up 15	.....	.....
Dec. 6. 1935	.....	.....	Up *9
Jan. 9, 1936	.....	Up 10	.....
Jan. 13, 1936	Up 15	.....	.....
Feb 26, 1936	.....	.....	Up †5
Dec. 28, 1936	Up 12	.....	.....
Jan. 28, 1937	.....	Up 12	.....
Feb. 24, 1937	Up 10	.....	.....
June 7, 1937	Up 15	.....	.....
Sept. 1, 1937	Cut 22	.....	.....
Oct. 12, 1937	Cut 25	.....	.....
Dec. 1, 1937	Cut 15	.....	.....
March 7, 1938	Cut 17	.....	.....
June 13, 1938	Cut 25	.....	.....
Sept. 1, 1938	Cut 12	.....	.....
Oct. 11, 1938	Cut 20	.....	.....

* Signal Hill 26 gravity.
† Seal Beach 26 gravity.

Crude Production Taxes

Oklahoma—Five percent of gross value less royalty interests.
Texas—2¾ cents or 2¾ percent, whichever is higher.
Louisiana—From four to 11 cents a barrel, depending upon gravity.
Arkansas—2.6 percent of gross market values.
Montana—Two percent of gross value at well and 3/8 of 1c per barrel.
New Mexico—Severance tax of 2 percent on oil and gas.
Wyoming and New Mexico—Production tax based upon state and county assessments.
California—.66443 mills per barrel of oil produced and 17.39 cents an acre on proved lands.

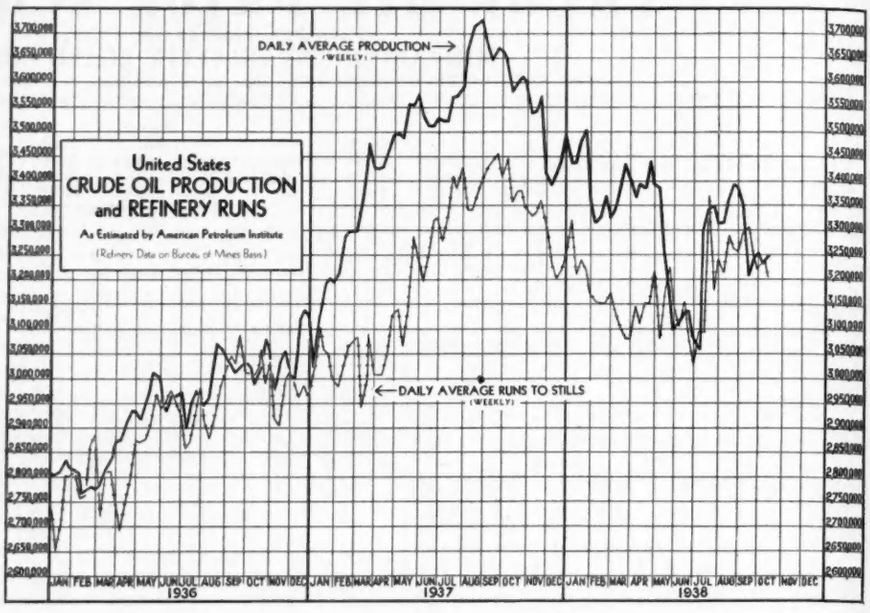
slightly in the week ended October 1, after having been on a steady decrease for a long period. The stocks rose about 250,000 barrels during the week, to 280,852,000 barrels. But before this slight increase, the crude inventories were at a 16-year low. They now are 9.1 percent smaller than a year ago.

Large production hurts Michigan crude market

Michigan, which does not have state oil-control laws, last week was under makeshift proration in flush districts, partly the result of pipe line restrictions and partly by voluntary action of operators. Price cuts ranging up to 12 cents per barrel at the turn of the month were followed last week by new cuts of 10 to 13 cents. The state's two newest districts, Bloomingdale in Van Buren County and Van Horn, Clare County, both have been registering material potential gains and now are in the midst of heavy drilling campaigns.

The Oil and Gas Association of Michigan reported total crude runs for September at 1,608,101 barrels as compared to 1,524,962 barrels in August. Buyers indicated that markets should be available during October for an approximate amount but visioned little chance of an increase. With potentials likely to jump from 15 to 20 percent, further cutback in both old and new pools and continued weak price structure appeared inevitable.

Townsite drilling in the village of Bloomingdale, Van Buren County, has constituted a big drag on the Michigan crude market. Eighteen tests have been started on townlots with two wells ranging up to 350 barrels daily already completed and apparently proving up at least half the town for development. Operators in some cases have entered agreements for 70- and 80-cent oil (current posted price 90 cents) to move production in the townsite boom.



Production in the Bloomingdale townsite play is from Traverse limestone at 1200 to 1240 feet deep, with drilling time ranging from 8 to 13 days. An average of 8640 barrels of oil was moved in the Allegan-Van Buren district last month with pipe lines now limiting most wells to 100 barrels per day. No standard interlocking program between three pipe line carriers and at least two other buyers, using trucks, has been reached. Considerable confusion and trouble already has developed between offset operators served by different carriers.

Representatives of 12 leading independent companies having either production or potential production in the Overisel-Oldebekking pool, discovered two months ago, have signed agreement not to sell for less than $1.00 per barrel and to halt all aggressive drilling.

The agreement provides for drilling of only necessary offsets to protect drainage. Most of the operators in the Overisel-Oldebekking pool agreement are interested in one or more other Allegan County pools but so far the hoped for spread of the pact has not taken place.

Expected to aggravate the situation is the gain in potential now being registered in the new Van Horn pool, Clare County, opened in July of this year. From 5 wells last week the pool has expanded to 10 this week, 4 others are ready to drill in and active rigs has jumped to 30.

Simrall Pipe Line Corporation, chief buyer in the pool, had placed a maximum of 1500 barrels per well on the pool up to last week, when it was cut back to 500 following 5 completions ranging in potentials up to an estimated 3500 barrels. All of the completions in the district were in previously indicated proven territory in the discovery area. As now defined the pool should have a minimum of 900 acres and this will be tripled if the pool from the discovery well runs through north to a 700-barrel well from the same formation developed by Pure Oil Company. Some operators anticipate a non-productive saddle between the two areas.

Michigan-Toledo Pipe Line was expected to have its new 8-inch line from the Mt. Pleasant station (on the 8-inch into Toledo, Ohio) into the Van Horn pool, Clare County, completed by October 15. This was expected to step up runs out of the field to around 10,000 barrels per day over present 6000 average.

Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	Gas & Fuel Oil Stocks (Barrels)
Sentember 25, 1937	3,666,300	*3,455,000	307,974,000	65,620,000	116,472,000
October 2	3,647,450	3,400,000	309,036,000	65,266,000	117,076,000
October 30	3,602,950	3,345,000	307,140,000	66,836,000	121,070,000
November 27	3,425,800	3,325,000	304,156,000	68,544,000	121,616,000
December 25	3,492,600	3,245,000	303,294,000	74,437,000	118,659,000
January 1, 1938	3,436,600	3,320,000	303,468,000	77,291,000	118,660,000
January 29	3,357,650	3,170,000	304,286,000	84,844,000	118,793,000
February 26	3,322,800	3,170,000	305,167,000	90 719,000	120,958,000
March 19	3,322,550	3,080,000	306,380,000	*93,192,000	122,067,000
March 26	3,405,600	3,080,000	307,557,000	92,858,000	122,979,000
April 30	3,396,150	3,215,000	307,147,000	91,339,000	128,270,000
May 28	3,098,650	3,150,000	301,583,000	87,946,000	134,315,000
June 25	3,083,900	3,025,000	293,463,000	82,412,000	137,801,000
July 30	3,316,400	3,240,000	288,514,000	76,864,000	144,294,000
August 27	3,388,500	3,255,000	285,029,000	71,754,000	146,926,000
September 24	3,251,150	3,220,000	280,278,000	68,605,000	150,468,000
October 1	3,231,800	3,235,000	280,852,000	68,602,000	151,759,000
October 8, 1938	3,249,350	3,205,000	.....	68,706,000	152,275,000
October 9, 1937	3,579,050	3,350,000	†309,036,000	65,532,000	118,442,000
Change in past year	—9.2%	—4.3%	—9.1%	+4.8%	+28.9%

* All time peak. † Stocks, October 2, 1937.

Crude Production

Increase of 45,375 barrels daily brings U. S. total to 3,278,825 barrels—87,975 below bureau estimate.

Crude output showed a sharp increase during the week ending October 15, having exceeded the previous week's level by 45,375 barrels a day. The new level of 3,278,825 barrels daily, however, was still 87,975 barrels below the market demand of 3,366,800 barrels a day, as estimated by the Bureau of Mines for the month of October.

California was mainly responsible for the increase, followed by Texas, Oklahoma, Louisiana and Kansas, slight decreases having only occurred in the less important states.

Texas production increased 13,300 barrels to 1,247,800 barrels a day, which was 111,200 barrels less than the indicated demand and 27,322 less than the allowable prescribed by the state.

California increased its production by 18,300 barrels a day, having averaged 679,400 barrels daily. That was 60,400 barrels more than the Bureau of Mines estimated demand and 64,400 barrels daily more than the recommendation of the Central Committee of California Oil Producers.

Oklahoma output was 7150 barrels a day higher than in the previous week, averaging 457,550 barrels daily, which was 66,050 barrels below the indicated market demand, but 29,550 barrels a day above the state allowable.

Kansas showed an increase of 575 barrels, averaging 155,275 barrels a day, which was 8125 barrels daily less than the Bureau of Mines recommendation and the state allowable.

Louisiana last week averaged 272,300 barrels a day, 3325 more than in the previous week, 23,900 barrels more than the estimated demand, and 11,830 barrels more than the state allowable.

Natural gasoline output and stocks still rising

Continued increases in the production of natural gasoline brought the average daily output in August to 5,726,000 gallons, or 1,350,000 gallons above that for July, but remained 14,000 gallons under the average for August, 1937, it was reported October 12 by the Bureau of Mines.

Total production for the month was 177,492,000 gallons, against 173,334,000 gallons in July, bringing output for the first 8 months of the year to 1,397,424,000 gallons, against 1,316,196,000 gallons for the corresponding period in 1937.

Most notable increases in production in August were in the Kettleman Hills, Seminole and Panhandle fields, the bureau reported; the largest decrease was in Texas.

Stocks continued to increase during the month and on August 31 holdings at refineries were 163,842,000 gallons against 159,642,000 gallons at the end of July, and at plants and terminals, 173,082,000 gallons against 160,146,000 gallons, the report showed.

Twenty acre spacing sought for Segno

Twenty acre spacing for wells producing from the Wilcox in the Segno field, Polk County, was unopposed at a hearing before the Texas Railroad Commission last week. The plan, proposed by Gulf Oil Corporation, applies to only five wells. Gulf engineers said the field was producing from 8100 feet and that bottom hole pressures as high as 3670 pounds had been encountered. Therefore, they recommended a minimum of 2100 feet of surface casing and heavy well-head fittings.

United States Crude Oil Production

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in October)	State Allowable in Oct.	BARRELS DAILY FOR WEEK ENDED Oct. 15	Oct. 8
TEXAS—				
Texas Panhandle	.....	.....	65,800	68,100
North Texas	.....	.....	71,500	71,800
West Central Texas	.....	.....	29,200	28,900
West Texas	.....	.....	196,100	189,900
East Central Texas	.....	.....	90,300	89,800
East Texas Field	.....	.....	370,800	370,400
South Texas	.....	.....	221,300	217,300
Texas Gulf Coast	.....	.....	202,800	201,300
Total Texas	1,359,000	1,275,122†	1,247,800	1,234,500
CALIFORNIA—				
Long Beach	.....	.....	54,600	55,000
Santa Fe Springs	.....	.....	31,700	30,800
Huntington Beach	.....	.....	33,300	31,300
Dominguez	.....	.....	28,000	25,900
Ventura Avenue	.....	.....	33,700	34,500
Midway-Sunset	.....	.....	59,100	49,000
Kettleman Hills	.....	.....	64,500	63,500
Wilmington	.....	.....	94,900	95,300
Others	.....	.....	279,600	275,800
Total California	619,000	615,000*	679,400	661,100
OKLAHOMA—				
Oklahoma City	.....	.....	108,925	99,300
Seminole Area	.....	.....	99,600	102,950
Fitts	.....	.....	37,875	36,525
Others	.....	.....	210,650	211,625
Total Oklahoma	523,600	428,000	457,050	450,400
LOUISIANA—				
North Louisiana	.....	.....	82,500	81,575
South Louisiana	.....	.....	189,800	187,600
Total Louisiana	248,400	260,470	272,300	268,975

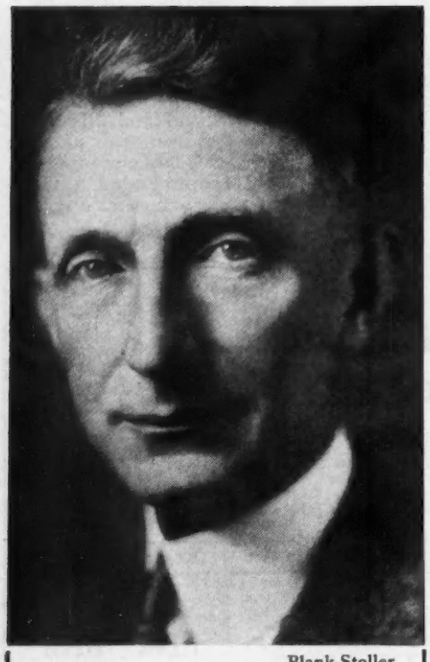
DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in October)	State Allowable in Oct.	BARRELS DAILY FOR WEEK ENDED Oct. 15	Oct. 8
KANSAS—				
Burrton-Haven	.....	.....	8,250	9,525
Russell County	.....	.....	24,125	21,475
Silica	.....	.....	9,925	10,875
Others	.....	.....	112,975	112,825
Total Kansas	163,400	163,400	155,275	154,700
NEW MEXICO	109,200	103,800	104,100	105,100
MICHIGAN	53,900	.....	53,250	52,100
ARKANSAS	54,100	.....	55,800	55,325
MOUNTAIN STATES—				
Wyoming	69,700	.....	51,300	54,700
Montana	13,800	.....	14,100	13,250
Colorado	4,300	.....	3,600	3,700
Total Mountain States	87,800	.....	69,000	71,650
EASTERN STATES—				
Pennsylvania Grade	.....	.....	73,000	80,000
Southern Illinois (New Pools)	.....	.....	76,500	53,650
Illinois-Indiana (Old Pools)	.....	.....	12,350	17,050
Others, Eastern	.....	.....	23,000	28,300
Total Eastern States	148,400	.....	184,850	179,600
Total United States	3,366,800	.....	3,278,825	3,233,450

† Daily average. Saturday and Sunday shut-downs to be continued through October 23.
* Recommendation of Central Committee of California Oil Producers.

Gas Convention

Governmental regulation is seen as likely unless wasteful practices eliminated . . . Development of new markets needed and not additional supply

Governmental regulation requiring the elimination of wasteful practices is likely unless the oil and gas industries quickly correct such procedures, and with 25 to 30 years of proven natural gas reserves the problem of this branch is development of new markets rather than finding additional volumes. These were some of the economic highlights brought out at the meetings of the Natural Gas Department of the American Gas Association during the 20th annual convention in Atlantic City last week, where technical problems and progress were also discussed by different speakers.



Blank-Stoller

THOMAS R. WEYMOUTH

was elected chairman of the Natural Gas Department of the American Gas Association at its annual meeting last week. Weymouth first joined the gas industry as assistant chief engineer for United Natural Gas Company at Oil City, Pennsylvania. This was in 1903. The years that followed saw him become chief engineer for United Natural Gas Company, president of Iroquois Gas Company, president of the Oklahoma Natural Gas Company, and in 1930 he moved into his present position as vice president of Columbia Gas & Electric Corporation.

CONRAD N. LAUER

was elected president of the American Gas Association for the ensuing year last week when the association held its 20th annual convention. Lauer is president of the Philadelphia Gas Works.

Abstracts of some of the economic and technical papers on natural gas are presented below:

Why Not Eliminate Waste?

By ELMER F. SCHMIDT, vice president Lone Star Gas Company

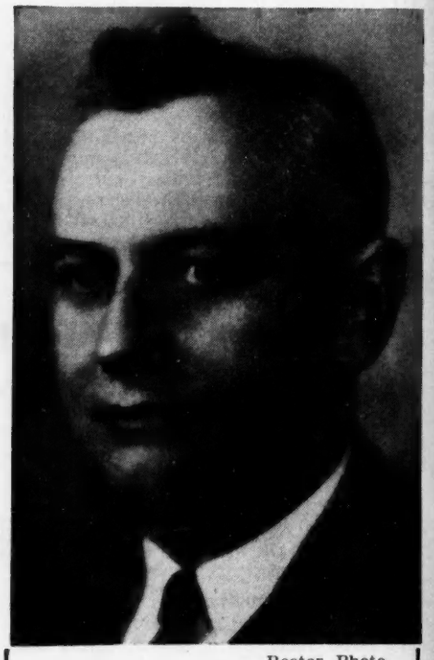
Unless the oil and gas industries move rapidly to eliminate some of their wasteful practices, they may expect governmental requirements to do it for them. There have been "unthinkable" waste of natural gas which does not occur in conjunction with oil production.

The most notorious example of such waste was during the "stripping era" in the Texas Panhandle field during the time of passage of the so-called Sour Gas Bill by the Texas Legislature in 1933 until its repeal in 1935. This legalized the production and waste of dry natural gas for the sole purpose of recovering the gasoline content.

The waste, however, which is more important to the industry as a whole, is the waste of both oil and gas in connection with the production of oil. The cumulative quantities of gas wasted in the production of oil and the quantities of oil left unrecovered as a result of the attendant loss of reservoir energy have been of such magnitude that the waste permitted by the "stripping era" in the Texas Panhandle, is inconsequential in comparison.

Fortunately, the procedure of operation in these combination (gas and oil) fields which will obtain the greatest quantity of oil will make available large gas reserves, and therefore the interest of these two industries do not diverge to any great extent. A considerable proportion of the potential gas reserves exist today in deep high pressure reservoirs where there is contact with oil reserves.

The gas in these reservoirs may or may not be saved for ultimate commercial consumption, depending largely upon the procedure followed in producing the oil. The continued use of operating procedures now in effect in most fields of this nature, although an improvement over wide-open methods employed in the past, nevertheless, will



Rector Photo.

ELMER F. SCHMIDT

was elected vice chairman of the Natural Gas Department of the American Gas Association at its annual meeting last week. His first natural gas work was in 1912 in the engineering department of Ohio Fuel Supply Company in West Virginia. He has constantly remained in the gas business since that time. He has been with Lone Star Gas Company since 1918, and now is vice president and operating manager of the concern. This gives him executive supervision over the production and transmission of one of the largest natural gas systems in the southwest.

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result in the loss of enormous gas reserves.

The remedy for this waste lies in the returning of the gas to the reservoir to remain until it is utilized. It has been definitely shown that the major portion of the gas reserves which are found in contact with oil can be saved for commercial consumption, and, likewise, that oil recoveries can be increased materially by means of procedures that return the gas to the reservoirs.

There are three principal procedures that may be followed in oil and gas properties to eliminate the major portion of the waste of these natural resources:

1. Pressure maintenance or repressuring of oil producing formations.

2. Recycling of gas for recovery of distillate.

3. The storage of excess gas production in deleted reservoirs for future consumption.

Geophysical Methods of Exploration

By DR. J. BRIAN EBY, consulting geophysicist.

Recent scientific advances in the art of locating underground supplies of oil and natural gas threaten to make the wildcatter with his hunches as extinct as the cigar store Indian. The wildcatter is fast being replaced by the exploration scientist, who locates oil and gas fields with the aid of dynamite and the seismograph. By a series of brilliant field discoveries the dynamite-seismograph combination has established itself firmly as one of the most potent arms of the exploration division.

Oil and gas are found largely in the Gulf Coast sector in sands located around or overlying masses of salt, commonly known as salt domes. These domes are one-half to six miles in diameter and extend to unknown depths. The trick is in locating these hidden, scattered and widely isolated salt domes.

Today the exploration scientist uses a seismograph which locates the wave of a shock from four to six miles away. This shock is created by the explosion of 500 to 1000 pounds of dynamite. As the earth shock affects the distant seismograph a mirror is set in motion. By reflecting the light rays from this mirror an image of the disturbance is impressed on a sensitized rotating film, from which underground velocities may be computed.

The velocity of sound through salt is 15,000 to 16,000 feet per second, as against 6000 to 9000 feet for normal sediments. The difference establishes the existence of a salt dome.

The Life of Natural Gas Reserves

By E. HOLLEY POE, secretary, Natural Gas Division, American Gas Association

Of three million square miles in the United States, less than 12,000 have been proved to contain gas—so far.

Although nature may still be manufacturing gas, the process is so slow that no reliance from this source can be considered in determining the life of the natural gas supply. It seems to depend entirely upon the rapidity with which gas is withdrawn from existing supplies.

Due to advances in scientific knowledge, it is possible today to estimate the gas reserve of a given field quite accurately. Only where this has been done and where there is definite information as to probable rate of gas withdrawal can an intelligent estimate of the life of supply be made.

Forward-looking natural gas companies have secured control of sufficient gas reserves to assure their customers of an adequate supply of gas for at least 20 years. There are companies whose proven reserves have a life of 30 years, and which in addition either own or control undeveloped but

HOWELL C. COOPER PRESENTED WITH CHARLES A. MUNROE AWARD BY AMERICAN GAS ASSOCIATION

ONE of the highest honors within the gift of the American Gas Association was conferred on Howell C. Cooper, president of Hope Natural Gas Company of Pittsburgh, Pa., at the Association's annual convention in Atlantic City, N. J. Cooper received the Charles A. Munroe award for having made the most outstanding contribution of an individual toward the advancement of the gas industry. The presentation was made by the donor, Charles A. Munroe, of New York, past president of the Association.

The award was made for his distinguished work as chairman of the Main Technical and Research Committee of the Natural Gas Department of the Association and for his leadership in the solution of engineering problems. In the 16 years of this committee's extremely productive existence, during which he has served continuously as chairman, he has been the leader of a research program on gas measurement, pipe line flow and gas well delivery capacities and other research undertakings of vital importance to the gas industry. In fact, the committee was formed as a direct result of an address Cooper delivered at the 1922 convention of the Natural Gas Association of America, which later became a part of the American Gas Association.

While many eminent natural gas engineers have been associated with Cooper on the committee and have contributed greatly to its accomplishments, he has continued through the years to chart its course and make possible its remarkable achievements.

Born in Oil City, Pa., in 1874, Cooper was graduated from the Oil City High School in 1890. His practical experience was later augmented by private instruction in mathematics and engineering. He was employed from 1891 to 1898 in the shops of National Transit Company, Oil City, designing all types of machinery used in the oil and gas industries, such as engines, pumps, compressors, and drilling equipment. He served as ensign in the Navy during the Spanish-American war and later was engaged by the U. S. Navy Department on ship and engine design.

From 1904 to 1906 he was employed successively by a New York engineering firm, National Transit Company in Oil City and Prairie Oil & Gas Company, Kansas City, Mo. For the latter company he was engineer in charge of designing and construction of pump stations and connections on oil pipe lines from Oklahoma to Chicago. He then joined Standard Oil Company of New Jersey and later that year became affiliated with Ohio Oil Company, Indianapolis, Ind., as superintendent in charge of building and operating oil pipe lines. In 1908 he was employed by A. C. Bedford, Harrisburg, Pa., as superintendent in charge of building oil pipe lines, and in the same year he returned to Ohio Oil Company, this time at Harrisburg, Pa.

HOWELL C. COOPER

Cooper became associated with Hope Natural Gas Company and Peoples Natural Gas Company in 1910 as engineer constructing compressing stations and pipe lines for both companies. In 1910 he was made general superintendent in charge of all oil and gas operations of Hope Natural Gas Company, and affiliated companies in West Virginia and Ohio. He became chief engineer of the Hope group and Peoples group of companies in 1918, moving from Clarksburg to Pittsburgh in 1921, and becoming a vice president of the Hope group in 1927.

During the 14-year period, 1918-1932, he devoted much of his time to the interests of the Standard Oil Company of N. J., which included the founding of the following companies and their development: Interstate Gas Company, Domestic Coke Corporation, Colorado Interstate Gas Company, Mississippi River Engineers Company, Mississippi River Fuel Corporation, and other enterprises.

During this period, Cooper directed the construction of the Mississippi River Fuel Company's 500-mile pipe line and five compressing stations. He was also active in the organization and development of the Hope Construction and Refining Company which included the development of the company's gasoline, butane and propane production. He was elected vice president and general manager of the Hope group of natural gas companies in 1932 and became president the following year.

promising acreage which may furnish a supply of natural gas for many more years.

The assurance of a continued future supply is indicated by the tremendous reserves of natural gas now in sight in known, developed or partially developed reservoirs, together with the incomplete development of the territory surrounding these known reservoirs. The possibilities and probabilities of discovering additional reserves, even in areas completely removed from present known production, are continually increasing due to greater knowledge and improvements in drilling and production practices.

Scientific advancements not only lead to the discovery of new fields, but also to the discovery of gas from deeper strata. Recent advances in conservation of gas, by decreasing the amount of gas produced with oil, constitute a further assurance of greater and longer supply.

Opportunities and Responsibilities of the Natural Gas Industry

By JOSEPH E. POGUE, vice president Chase National Bank

The needs of the oil and gas industry are believed to be the standardization and improvement of state conservation laws; the firm establishment of the principle of ratable takings; and the broadening of the Interstate Oil Compact to act as a clearing house for the coordination and application of the fine body of technology that is so rapidly being built up.

Proven reserves of natural gas in the United States are believed to be in the neighborhood of 60 to 75 trillion cubic feet, enough for 25 to 30 years. Accordingly, the practical problem for sometime to come is more likely to be one of developing markets for new supplies rather than that of creating additional stimuli for research, although there are conditions under which the supply factors for both oil and gas might be retarded.

The important oil and gas producing states have laws for the conservation of these products, which are more perfected for oil than gas. The state utility commissions have been at work for several decades and a great mass of procedure has been developed and tested by the courts. But a coordinating theme has been lacking, and it is unfortunate that an Interstate Utility Compact has not been developed.

Regulation of Interstate Natural Gas Pipe Lines

By CLYDE L. SEAVEY, acting chairman Federal Power Commission

Natural gas companies will benefit by cooperating with the Federal Power Commission, and the commission will carry out its duties in a fair and unprejudiced manner.

On July 5, 1938, not more than two weeks after the Natural Gas Act had been signed by the President, the commission issued an order, designated as Order No. 51, authorizing the submission of a questionnaire to all persons and companies engaged in the natural gas business and directing a response by August 15. The purpose of the questionnaire was to enable the commission to develop the essential facts concerning the industry and to aid the commission in determining what companies should be classified for administrative purposes.

Apparently there was a misapprehension as to the commission's purpose, or there was fear of the consequences, for many companies made no reply.

The commission has adopted a set of provisional rules of practice and regulation, which include a provision for filing schedules by the companies covering rates and charges for the sale and transportation of natural gas.

In addition to initial problems concerning jurisdiction and the filing of schedules, the commission has been giving consideration to its responsibilities under Section 8 of the Act prescribing a uniform system of accounts.

In all the cases pending before the commission, as well as the promulgation of general rules, the commission intends to proceed carefully and without any desire to bring about overnight any revolutionary changes in the industry.

Colloidal Properties of Iron Oxide in the Removal of Hydrogen Sulphide from Gas

By FRANK H. DOTTERWEICH and WILBERT J. HUFF

An examination of published information on the rating of iron oxide purifying materials for the removal of hydrogen sulphide from gas discloses an unsatisfactory and inconclusive situation. The results obtained by chemical analysis do not form a basis for predicting the efficiency of oxide used and there is no standard test for this that has received universal acceptance. In general, the efficiency is determined by correlating various observations made while fouling the purifying material with hydrogen sulphide. Attempts have been made to govern such tests by scientific considerations. Various studies have recognized the significance of the capacity and activity of the iron oxide, but for a clear-cut differentiation of iron oxides based upon these properties has apparently not been attained and the properties are not entirely separable. The work of Milbourne emphasized particularly the variable effects that may be produced by humidity. In the study described in this paper, major attention is directed to a correlation of the physical and colloidal properties of the iron oxide with its efficiency in the removal of the hydrogen sulphide.

The Extinction of Gas Flames by Steam

By JESSE S. YEAW and LOUIS SHNIDMAN
Rochester Gas & Electric Corporation
Rochester, N. Y.

The extinction of the flames of hydrogen, carbon monoxide, methane, benzene vapor, coal gas, and producer gas, by increasing proportions of steam, has been experimentally studied using a spherical 350 c. c. glass explosion pipet and a spark discharge as a source of ignition. Corresponding experimental data showing the extinctive effect of nitrogen and carbon dioxide have been obtained by others. The work has been compared and summarized in this paper.

Steam was found to be equivalent to and in some instances superior to the inert carbon dioxide in its quenching effect on flame propagation. Nitrogen is much weaker in this respect than either of the others.

The paper includes charts and tables presented and plotted in such ways as to give the general information necessary for the proper treatment of any mixture to prevent explosion hazards. A section is also devoted to the calculation of the explosive limits of any mixture for which the analysis is available.

The Metallography and Welding of High Strength Structural Steels

By W. A. PEARL,
Armour Institute of Technology,
Chicago

This paper in reality is a continuation of the paper "Metallography of Welding and Importance of Training Welders," presented at Cincinnati this year. Summing up briefly a few of the points brought out in the previous paper, which dealt entirely with the welding of low-carbon structural steels, we may say that it is possible for a trained welder to deposit with an arc or torch, metal that is superior in all physical properties to those properties of low-carbon steel. The deposited metal when using good low-carbon-steel rods will, after being deposited, be denser, stronger, and not materially harder than the parent metal being welded. Likewise the fusion zone will not become the weak point in the weld zone. Neither will the adjacent affected zone be weakened, but as a result of grain refinement produced by the weld, may be stronger than the parent metal.

A Primer on Deposits in Gas Pipes and Appliances

By ALFRED R. POWELL,
Koppers Company, Pittsburgh, Pa.

If gas left the point of manufacture or production entirely free of suspended liquid or solid material and remained free of suspended or condensed material up to the point of consumption and contained no constituents that would chemically attack the metal of appliances, then there would be no problem of stoppages in gas supply. This means simply that 100 percent gas, free of corrosive substances, could not possibly cause stoppage of flow, even after years of continuous service of the gas mains and customers' appliances.

Unfortunately this idealistic condition does not exist, and distributed gas always contains some of the various trouble-making factors. The best that can be hoped for in practice is that these substances shall be so small in amount or occur in larger amounts at such infrequent intervals that the problems of removing deposits from pipes and customers' appliances will be but a minor part of the regular maintenance and servicing. Various causes for deposit from gas are discussed in the article.

Variations in Interchangeability Formulae in High B. T. U. Gases

By LEON J. WILLIEN,
Chief Gas Engineer,
Public Utility Engineering and Service Corp., Chicago

There are two factors inherent in the utilization of gas. They are:

1. Specific Gravity.
2. Heating Value.
3. Chemical Composition.
4. Gas Line Pressure.

The first two are dependent upon the third though their aspects are of a physical rather than chemical nature. The fourth is independent of the other

three, being entirely a function of the relation between the distribution equipment and the demand.

The replacement of manufactured gas with natural gas and mixtures of natural and manufactured gases has brought with it a problem of interchangeability of gases for peak loads and emergency use.

In connection with its research on mixed gases, the A. G. A. Testing Laboratory developed an empirical formula for determining limits in mixing city gases. This formula is as follows:

$$C=\frac{htAtda}{haAadt}+\left(\frac{haAa}{5000EaFa}-\frac{htAt}{5000EtFt.}\right)..(17)$$

Where:

C=index of change in performance of appliances. For continued satisfactory performance of appliances when the gas on which they have been adjusted to perform satisfactorily (adjustment gas) is to be replaced by another gas (test gas) the value of C should be held between 0.85 an 1.15,

h =gross or total heating value, B.t.u. per cu. ft.,

A=air theoretically required for complete combustion, cu. ft. per cu. ft. of gas,

d =specific gravity (air = 1.0)

E=the heat capacity of the theoretical products of combustion 60° F. to 1600° F., B.t.u.,

$=0.029VCO_2 + 0.023VH_2O + 0.0189VN_2$, where V = volume of each product as indicated by the respective subscripts CO_2, H_2O and N_2, formed by the combustion of one cu. ft. of gas with the air theoretically required for complete combustion, cu. ft. and 0.029, 0.023 and 0.0189 = heat capacity of each product of combustion 60° F. to 1600° F., B.t.u. per cu. ft.

F=summation of the products of the mol fraction and a constant resolving each combustible constituent to the basis of equivalent free hydrogen.

$=H_2+5.36\ CO+35.2$ Ill.$+27.3\ CH_4+38.7\ C_2H_6+80.8\ C_4H_{10}$, where H_2, CO, Ill., etc. = Mol fraction of each combustible constituent in the gas, and

A and t = subscripts designating the adjustment gas and test gas respectively.

The Engineering Significance of the National Bureau of Standards Soil Corrosion Data

By KIRK H. LOGAN,
National Bureau of Standards,
Washington, D. C.

This paper deals with the use of the National Bureau of Standards' data on soil corrosion in the estimation of the corrosion to be expected on pipes, and in an attempt to express the corrosiveness of the soils investigated in terms that can readily be understood. The equations used in the estimations of corrosiveness of soils have been developed by others and most of them have been published in technical journals.

Soils differ greatly in corrosiveness and their corrosivity is affected by many soil properties. Early in the study of soil corrosion it was learned that in many soils the depth of the deepest pit was not proportional to the period of the exposure of the metal to the soil.

It has been shown that before data on underground corrosion involving one time of exposure and one area from which the maximum pit is chosen can be used for the estimation of the pit depths on a different area after different time of exposure, some adjustment of the data must be made.

The Manufacturer's Viewpoint

By MERRILL N. DAVIS,
President, Association of Gas Appliance and Equipment Manufacturers

"Allow me to approach my subject from a somewhat critical viewpoint by saying that many in our industry have been making futile attempts to buck a national trend that is founded on a 'new mass thought and emotion.' While I feel that as a figure of speech the words 'pump priming' have been terribly abused, I think that in its true sense pump priming is just what we need to do in our industry. We might benefit from our present apparent national adversities by realizing more gas sales and load increases from the United States housing program in the national spending spree."

Economics to feature I.P.A.A. program

Objectives of the Independent Petroleum Association of America will dominate the program of the ninth annual convention, Tulsa, October 19, 20 and 21. This overall program is:

Equitable allocation among the oil states.

Fair and equitable allocations among pools within the states.

Ratable takings within pools within the states.

Unnecessary and unprofitable drilling.

The renewal and extension of the Connally hot oil law.

The limitation of withdrawal from storage.

Effective limitation of imported crude oil and refined products.

The renewal and strengthening of the Interstate Compact.

Pollution legislation.

Retention of the 27½ percent depletion clause in the Federal revenue act.

Excessive and unjust taxation of the petroleum industry.

Permissive agreements within the industry subject to the approval of a proper federal agency.

A fair share of the market and a fair price for every producer wherever oil is produced within the American petroleum industry.

Since formulation of this program a general crude oil price cut of 20 cents a barrel has brought an additional subject into the foreground with rumblings to indicate consideration of other subjects. There is a possibility that the association may be called upon to consider in executive committee a proposal that it go on record as favoring divorcement of pipe line facilities from other divisions of the industry. This fits into the subject of ratable takings within pools within the states. Recently because of "pipe line proration" ratable taking has had severe jolting in Oklahoma and Kansas. Over a longer period the situation in the K-M-A field, North Texas, has been contrary to ratable taking, since connections could not be made to all wells by major crude oil buyers.

Most of the work of the convention will be completed through committee activity. First committee meetings will start the evening of October 18. All the first day of the convention, October 19, will be devoted to meetings of the committees. The first general session will come the morning of October 20 and continue through the closing day October 21. Committee reports will take up the major part of the time of general sessions.

Luncheons will be held both October 21 and 22, and the annual banquet the evening of the last day will bring Donald R. Richberg, Washington attorney, before the oil industry as speaker of the evening.

Prior to the opening of the convention both the National Stripper Well Association and the Oklahoma Stripper Well Association will meet in Tulsa October 18.

South Texas geologists meet October 21-22

The tenth annual Mid-year Meeting and Field Trip of the South Texas Geological Society will be held October 21 and 22. A technical program will be given in Corpus Christi on the first day. On the second day, there will be a trip through some of the oil fields in Aransas, San Patricio and Nueces counties.

The Plaza Hotel in Corpus Christi will be headquarters during the meeting. For the convenience of early arrivals, the registration booth will be open from 7:00 A.M. to 8:00 P.M. Thursday, October 20. It also will be open on Friday and Saturday from 8:00 A.M. to 10:00 A.M. A one-dollar registration fee will be charged for a copy of the program, a map and road log of the field trip, and a barbecue lunch at Welder Park.

At 9:00 A.M. the technical session will begin on the Deck of the Plaza Hotel. The program will consist of an address by Dr. Donald C. Barton; "Correlation of Subsurface and Surface Formations in Two Type Sections of the Texas Gulf Coast" by Alexander Deussen and Kenneth Dale Owen; "Late Cretaceous and Tertiary Volcanism in Southwestern Trans-Pecos Texas" by Vaughn C. Maley; "General Developments in South Texas During the First Nine Months of 1938" by Stuart Mossom; "Saxet Oil Field, Nueces County, Texas" by John C. Poole; "Producing Zones in South Texas in the Jackson and older Formations" by Herschel H. Cooper; "Producing Zones in South Texas in the Vicksburg and Younger Formations" by John M. Clayton; "Progress of Paleontological Work in South Texas" by Philip D. Gully; "Comparison of Geophysical Interpretations with Subsequent Drilling Information" with author to be selected.

Those making the field trip will leave the Plaza Hotel at 8:30 A.M. Saturday, October 22, under the direction of members of the Field Trip Committee. The first stop will be in the McCampbell field where gasoline extraction plant of Western Supply Company and Atlantic Refining Company will be visited. The party will then continue to the Midway, Taft and Plymouth fields where talks will be made by geologists familiar with the fields. At Welder Park, near Sinton, the party will stop for a barbecue lunch. After lunch, the party will proceed on to the Turkey

Creek, Saxet and Saxet Heights fields. In the Saxet field a stop will be made at the Southern Minerals Corporation gasoline plant and those desiring so may inspect the plant. Field problems will be discussed also. The trip will end in Corpus Christi early Saturday evening.

West Coast A.I.M.E. meets October 20-21

Program for the petroleum division at the fall divisional meeting of the American Institute of Mining and Metallurgical Engineers, to be held in Los Angeles October 20-21, was announced last week by the institute's local chapter. Sessions will be held in the Pacific Electric Club theater.

The opening day will be featured by an informal luncheon at the Biltmore Hotel and a dinner at the University Club. The latter event will be a joint gathering of the Industrial Minerals Division and the Petroleum Division. J. Howard Marshall will be the guest speaker and E. K. Parks, chairman, Southern California Section, will preside.

The petroleum division program, as announced by Harry P. Stolz, chairman of the program committee, follows:

Morning Session—9:00 a.m.-12:30 p.m.
Technical Session. Opened by W. H. Geis, Associate Chairman, Petroleum Division. Harry P. Stolz, Chairman.

"Interpretation of Deeply Buried Structures," by Walter English and others, Superior Oil Company.

"Theoretical Reservoir Conditions," by John F. Dodge, University of Southern California.

"A Suggested Cause and Measure of Retrograde Condensation and Retrograde Vaporization," by W. H. Geis, Consultant.

"Gravitational Concentration Gradients in Static Columns of Hydrocarbon Fluids," by B. H. Sage and W. N. Lacey, California Institute of Technology.

Afternoon Session—2:00 p.m.-5:00 p.m.
E. P. Parks, Chairman

"Modern Trends in Drilling Practices," by A. H. Bell and others, Continental Oil Company.

"Current Practices in Drilling Procedure," by Victor Bessinger, Richfield Oil Corporation.

"A Resume of the Technique and Economics of Coring," by Sam Grinsfelder, Union Oil Company.

"Core Analysis," by Howard C. Pyle and John E. Sherborne, Union Oil Company.

"Mechnical Formation Testing," by D. T. Hoenshell, Petroleum Engineer, Kettleman North Dome Association.

"Casing and Cementing Requirements of the California State Division of Oil and Gas," by E. Huguenin, Department Supervisor, Division of Oil and Gas.

"The Economics of Casing Programs," by H. P. Wichersham and C. W. Froom, Union Oil Company.

"Testing and Grading of Oil Well Cement," Eugene L. Davis, The Texas Company.

"Cementing for Multiple Zone Production," by C. J. Dean, General Petroleum Corporation.

"Production Equipment," by C. A. Yeatman, Shell Oil Company.

"Completion Methods," by W. A. Clarke, The Texas Company.

C.N.G.A. annual meeting program announced

Anticipating a record attendance at the California Natural Gasoline Association's 13th Annual Fall All-Day Meeting, scheduled for Friday, November 4, at the Ambassador Hotel, H. R. Linhoff, president of the association, announces the program developed for the event.

Technical papers to be presented at the event are all of such nature as to have both specific and general appeal not only to engineers engaged in the natural gasoline field but to all engineers and chemists in all branches of the oil and gas industry. The banquet scheduled for the evening is the only event for which charge is made. Tickets are $3.50 per plate and a request has been made that all planning to attend make reservation with the organization's secretary, George L. Tyler, 510 West Sixth Street, Los Angeles, Vandike 5521.

The program is as follows:

FRIDAY, NOVEMBER 4, 1938

9:30 A.M. Meeting Called to Order.
Opening Remarks: H. R. Linhoff, president.
Report: Technical Committee's Report of Problems Affecting the Natural Gasoline Industry.

"A New Molecular Test for Absorption Oils," by D. B. Johns.

"A Hydrometer Test Applied to Liquefied Petroleum Gases," by W. M. Schaufelberger.

"Advances in Design and Operation of Compressor Plants," by T. Hume West.

AFTERNOON SESSION, 2 p.m.

"Pressure Maintenance or Saving of Reservoir Energy in Connection with the Production of Oil as Practiced by Mid-Continent Operators," by Stanley Herold, Consulting Engineer.

"Possibilities and Limitations of the Production of Oil Under Pressure Maintenance from California Fields," by A. C. Rubel, Union Oil Company of California.

"Effect of Pressure Maintenance on Gasoline Plant Design," by Henry N. Wade, Parkhill-Wade, Consulting and Construction Engineers.

"Possible Utilization of Lighter Hydrocarbons Such as Ethane, Propane and Butane for the Production of Chemicals," by Dr. Robert E. Vivian, Associate Professor of Chemical Engineering, University of Southern California.

Postpone Munson hearing

The Texas Railroad Commission postponed last week its hearing on the Munson area in Duval and McMullen counties. A hearing on the Tesoro field in Starr County was postponed on the same day.

Arkansas Fuel Oil Company had requested both hearings but had apparently decided conditions did not yet warrant special field rules.

LESLIE POULIN PRESENTED WITH NATIONAL SAFETY COUNCIL PRESIDENT'S AWARD FOR HEROIC EFFORTS

HE BECOMES FOURTEENTH MEMBER OF THE TEXAS COMPANY TO BE AWARDED THIS MEDAL

LESLIE POULIN, an employe of The Texas Company at Casper (Wyoming) Works, was presented the National Safety Council President's Medal on September 30 for his heroic efforts in connection with the resuscitation of C. A. Britton on June 24, 1937. The official presentation of the award was made by Capt. A. A. Nichoson, manager of The Texas Company personnel department, who lauded Poulin's act and stressed the value of preparedness for emergencies while addressing the employes of Casper Works who had assembled to see their fellow-employe receive this award of merit.

C. A. Britton had been overcome by steam and oil fumes while washing out a tank car. When removed from the car, he had stopped breathing, and artificial respiration was applied immediately by Poulin, who had rushed to the scene of the accident. After four or five minutes of this treatment, breathing was restored and the patient was then treated for shock and given medical care.

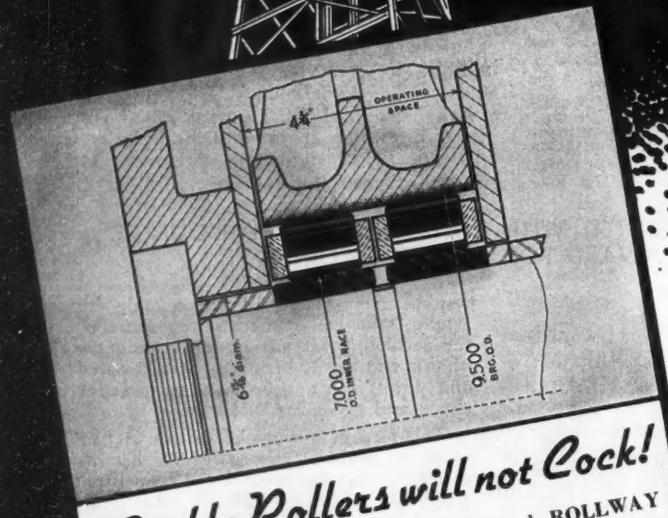
The face of the medal carries in bas-relief a symbolic design which has its origin in Greek mythology: the three goddesses of Fate—Clotho, who spins the thread of life; Lachesis, who determines its length; and Atropos, who cuts the thread of life, work under the watchful scrutiny of a figure symbolic of safety.

On the medal the figure of Safety stays the hand that would cut the thread of life; and engraved on the reverse side of the medal is the citation showing the name of the recipient, the date of the resuscitation, and the name of the person saved.

Poulin is the fourteenth employe of The Texas Company to receive the National Safety Council President's Medal, a period of about five years having elapsed since this award was made to an employe of this company for the first time.

Leslie Poulin is shown here as he received the National Safety Council's President Medal for his resuscitation of a fellow worker. Left to right: R. P. Beall, assistant superintendent of the Casper Works of The Texas Company; L. F. J. Wilking, superintendent, Casper Works of The Texas Company; Leslie Poulin; A. A. Nichoson, manager personnel department, The Texas Company; C. A. Britton, whose life Poulin saved; and Charles A. Miller, assistant manager, personnel department, The Texas Company.

AS FAST AS DRILL CREWS CAN HANDLE THE PIPE—



Double Rollers will not Cock!

Drawing for a Crown or Traveling Block ROLLWAY ROLLER BEARING showing double row of high-carbon, high-chrome alloy steel rollers tracking on a hardened and ground individual inner race. There are 15 rollers in each row, rendering each sheave assembly capable of carrying 61,000 lbs. at 400 RPM.

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The hardened and ground inner races are individual for each sheave. They enable you to space the sheaves to conform with the crown block, preventing side friction of the line and insuring more equal distribution of the load.

All of these factors combine to reduce wear on the line, wear on the block and wear on the bearing—greatly reducing operating cost.

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WRITE TODAY. Let our free Advisory Engineering Service assist you in selecting the most efficient Rollway Bearing type for:

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- ★ Blowout Preventers
- ★ Roller Bits
- ★ Rotary Pumps
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- ★ Pitmans
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WEEK'S DRILLING HIGHLIGHTS

California

Kettleman Hills is 10 years old this month. Early development there had a marked influence on progress in drilling practice throughout the world and influenced a wide search for additional deposits which has resulted in discovery of a number of fields, and the end is not yet.

Wyoming

A southwestern Wyoming wildcat had a gas blowout estimated from 20 to 50 million cubic feet daily. The Frannie field, Park County, Wyoming, was extended a quarter mile west. Sinclair-Wyoming Oil Company's deep test at Mahoney is rated for 35 barrels per hour to bring in the Tensleep as a new productive zone for the Central Wyoming field.

Kansas

Kansas had new pools in Russell and Cowley Counties with an extension for the South Silica pool, Barton County. The week saw the wildcatting campaign move into the northeastern part of the state, where one well was started a week earlier and large acreage blocks are being assembled to test parts of four counties.

Illinois

Anticipating alternating periods of freeze and thaw that winter brings to the district, Illinois operators are pushing operations while the weather is right. Other than that things were normal last week, an outstanding interest being indications of the first production in Brown County, west central part of the state.

Southwest Texas

Deepest production in the Lower Coast country is below 9900 feet now that distillate has been found at that level in the Saxet field, Nueces County. A number of other deep projects are having trouble with heaving shale, and six have drill stem stuck. In the Vicksburg trend play, Sun pool in Starr County is indicated to have several sands productive. Shattel in Frio County is definitely an oil strike as the discovery well goes on pump and rig moves over for further drilling.

Oklahoma

After a week of testing with tubing in the hole, the Garfield County wildcat opening the Hillsdale field, was listed as a flowing producer, although it has pressure below 1000 pounds and is cutting 1 to 4 percent water. A second test is starting. Another small oil field north of the Oklahoma City field, Oklahoma County, was assured. Two wells were completed in the Ramsey pool and one left ready for drilling in to wind up the current drilling campaign and give the communitized area 16 wells.

Texas Gulf Coast

Biggest current interest is in a wildcat at League City about which little definite information has been released. What has been told indicates some kind of a well, and be in the Hastings-Dickinson-Friendswood district, speculation can have anything.

Kentucky

Two new spots were opened in Henderson County, Kentucky, while other producing areas were extended. Developments currently are giving encouragement to the idea that many holes abandoned as failures years ago can be made producers with information recently developed on where to find it.

New Mexico

Operations continue normal in New Mexico, which means that despite lower prices and proration of runs drilling continues an active pace. This week saw 14 new operations started and they successively will require more drilling to meet lease requirements.

Comparison of Permits Granted for New Wells

STATE	Week Ending Oct. 15	Total this Mo.	Total this Year	Total this Date Last Year	1937 Year Total
Arkansas	2	7	195	204	240
California	25	42	982	1,251	1,584
Louisiana	....	42	1.007	1,012	1,227
Kansas	30	58	1,258	2,250	2,663
Michigan	....	24	715	794	958
Oklahoma	42	89	1,647	2,285	2,711
Texas	144	360	10,440	14,333	17,238
Total	243	622	16,244	22,129	26,621

Summary of Wells Completed in the United States Week Ending October 15, 1938

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total, 1938	Total this Date, 1937
Alabama	.....	.....	.....	.....	.....	2	1
Arkansas	6	6	.....	.....	4,996	180	99
California	22	18	.....	4	10,791	1,011	1,193
Colorado	.....	.....	.....	.....	.....	6	16
Florida	.....	.....	.....	.....	.....	.....	1
Georgia	.....	.....	.....	.....	.....	1	.....
Illinois	36	33	.....	3	11,055	1,145	225
Indiana	.....	.....	.....	.....	.....	96	105
Kansas	24	21	.....	3	28,241	1,359	2,133
Kentucky	22	12	1	9	2,095	631	359
Louisiana	22	13	2	7	8,816	881	781
Michigan	31	17	2	12	11,360	753	770
Mississippi	.....	.....	.....	.....	.....	12	11
Montana	3	1	1	1	160	60	161
Nebraska	.....	.....	.....	.....	.....	1	.....
New Mexico	6	6	.....	.....	2,452	425	567
New York	*12	.....	1	11	32	*532	*1,023
North Dakota	.....	.....	.....	.....	.....	1	1
Ohio	20	8	7	5	173	777	1,211
Oklahoma	42	23	.....	19	4,247	1,754	2,439
Pennsylvania	*34	28	1	5	45	*1,689	*2,411
Tennessee	.....	.....	.....	.....	.....	2	.....
Texas	187	140	4	43	209,712	10,186	12,185
Utah	.....	.....	.....	.....	.....	3	.....
West Virginia	13	2	9	2	10	557	745
Wyoming	3	2	.....	1	458	85	86
Total this week	483	330	28	125	294,643	22,149	26,522
Total last week	577	384	44	149	291,194	.....	.....
Total this year	22,149	15,336	1,566	5,247	14,338,981	..	

* Includes water-intake and pressure wells.

Oklahoma Fields

New Oklahoma County field on structure of limited size. Hillsdale offset to drill carefully to find oil source.

Tulsa.—Another oil field for Oklahoma County, where only a small productive area is indicated, better performance of the Hillsdale discovery well in Garfield County and completion of two more wells for the Ramsey field, Payne County, were highlights of the week in Oklahoma.

The Oklahoma County discovery, not yet completed, was drilled by Kerlyn Oil Company on an orphanage tract north of Britton, SE SW NW 21-13n-3w, with bottom of the hole in a break between the two Wilcox sands. It has been making oil while bailing with some flowing production for a week. Gas pressure is low and geologists consider the structure of limited size.

Although the Hillsdale discovery now has pressure below 1000 pounds it is flowing through tubing after being dead for a day prior to introduction of tubing. Champlin Refining Company is starting a south offset, which will be drilled in a manner to determine source of the small amount of water coming from the discovery well.

The two completions in the Ramsey pool left but one active rig, a test due to drill in within the week. Successful completion will give the field 16 wells with no active rigs. All production is within the community block of 640 acres, operated by Mid-Continent Petroleum Corporation.

Total results from drilling in Oklahoma were disappointing last week, as the 23 producing wells were offset by 19 dry holes to make up 42 completions. The 23 producing wells added but 4247 barrels initial output. Locations were staked for 42 additional wells.

Britton Strike

Kerlyn Oil Company has flowing output of around 150 barrels daily from a break between the first and second Wilcox sands in Orphanage 1, SE SW NW 21-13n-3w, Oklahoma County. The test is less than a mile east of production in the Britton pool. Total depth is 6702 feet, from where the well has been making oil while bailing for more than a week. It may be drilled deeper to test the second Wilcox sand.

In testimony before the Oklahoma Corporation Commission, which is being asked to restrict additional drilling to 10-acre spacing, geologists gave the opinion that development will cover a comparatively small area. This test is on a lease of 160 acres, a home for orphans, under ownership of the Methodist church. Low output so far plus the drilling depth and the consequent cost indicate that further development will be slow.

After being dead for a day, the Garfield County strike near Hillsdale, Boehm 1, SW SW NE 4-24n-8w, owned by Champlin Refining Company, came back to continue flowing by heads through tubing with its water content reduced. The bottom-hole pressure has dropped to less than 1000 pounds on the casing from a high of 2275 while the well was shut in after cleaning itself three weeks ago.

While running tubing the well flowed 940 barrels through both tubing and casing. With tubing in the hole it made 728 barrels in 24 hours, cutting 1 percent. The latest 24-hour gauge was 644 barrels in 24 hours, cutting 1 to 4 percent salt water. Source of the water has not been determined. It is at 6703 feet in Second Wilcox sand, top 6792 feet.

Evidently no further effort will be made to determine source of the water in the discovery well, since an offset, Mackey 1, NW SE 4-24n-8w, has been started. In completing this well care will be taken to determine source of any water.

The better turn in performance of the discovery well brought the area back into lease and royalty favor, however, it is not likely that many locations will be staked until the second well is completed.

An extension for the recent southeast Braman Wilcox sand strike looked favorable last week when Onstott 1, NW NW NE 17-28n-1w, Kay County, drilled by E. J. Shaffer, had a saturated core between 3664 and 3668 feet, total depth, in the Wilcox sand. The well is between the discovery well and older production in the Braman pool. The south offset to the discovery well, Wilbur 1, NW NE NW 21-28n-1w, looked good for a third producer for this field when it had saturation in the Wilcox sand, total depth 3664½ feet. Casing was set at 3620 feet in preparation for completion. This well is owned by Ohio Oil Company and Helmerich and Payne, Inc. A mile south, Atlantic Refining Company is ready to set casing in Watson 1, SE SE NW 28-28n-1w, a wildcat test.

A second well for the new pool south of Britton, Oklahoma County, was started last week by Olson Oil Company and associates, Community 1, SW SW NE 4-12n-2w, a west offset to the second Wilcox sand discovery well, completed by Olson Oil Company in September.

Another Wilcox sand wildcat test for Northern Oklahoma is to be drilled south of the old Tonkawa pool by Phillips Petroleum Company, which will make a location in the southwest quarter of township 24 north, range 1 west.

With two more wells completed and a third near the Wilcox sand, the Ramsey pool, Payne County, promised to come up with 16 producers before the end of the week. These three wells are the only active tests in the field, which is confined to a community block of 640 acres, operated by Mid-Continent Petroleum Corporation.

Brandon 3, SE NE NE 13-18n-1e, extends production one location to the northwest. It had top of the Wilcox sand at 4811 feet and drilled to 4844 feet, with 7-inch casing set at 4762 feet. Prior to taking potential it flowed at the rate of 250 barrels an hour for three hours.

Although still not completed, Gray 1, NE SW SW 18-18n-2e, was making around 300 barrels an hour while clean-

OKLAHOMA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Atoka—		
Gilmort Oil Co., Lee 1, ne nw sw 2-4s-10e	*	3455
Caddo—		
Stephens, Griffen 5, swc ne 27-6n-10w	1920	4874
Coal—		
Griggs Bros., Spencer 1, se sw se 23-1n-8e	*	453
Carter Oil Co., Mote 1, c e½ sw nw 19-2n-9e	*	7374
Comanche—		
McCuestian et al, Meyer 1, sw sw se sw 31-2n-10w	*	100
Midnight Oil Co., Howe 1, nwc ne 20-2n-13w	*	700
Creek—		
Crosbie, Escoe 11, sw ne sw 26-18n-8e (pb 2617 ft)	25	2619
Jackson, Wilson 8, c nw ne 34-18n-8e (otd 1321 ft)	10	2627
Garfield—		
I. T. I. O., Kichens 1, sec 17-22n-5w	*	6954
Garvin—		
Hollenback, Butterly 1, nec se 22-1n-1e	*	3205
Kiowa—		
Principle Oil Co., King 1A, sw ne sw 27-7n-20w	*	1055
Lincoln—		
Mudge Oil Co., Potter 1, swc ne 10-14n-6e	12	3000
Helmerich & Payne, Kenworthey 1, nec sw 14-14n-6e	50	2990
Wilcox O&G Co., DeLozier 11, nw ne nw 15-14n-6e	85	3000
Fitch 4, nec 15-14n-6e	40	3020
Sax-Fox 17, ne se sw 15-14n-6e	62	3037
Love—		
Sinclair Prairie Oil Co., Felts 1, nec 35-6s-2w	*	8185
Marshall—		
Hughes Drlg. Co., Vittitoe 1, c ne se 11-5s-5e	*	7110
Okfuskee—		
Dixon & Wood, Cox 1A, nw sw se se 34-10n-9e	*	1895
Commercial Oil Co., Coney 7, 200 ft n of c e½ ne 26-12n-11e	*	3605
Mid-Continent Pet. Corp., Ireland 4, ne nw sw 10-13n-10e	100	3455
Okmulgee—		
Link Oil Co., Hill 18, ne ne sw ne 28-13n-14e	5	1593
E. Smith, Spaulding 5, ne sw se ne 1-14n-12e	*	2215
Richardson, Smith 1, ne se sw nw 30-14n-13e	5	1642
R. B. Pugh, Corbray 15, sw nec nw 23-14n-14e	5	1046
Bryan Pet. Co., Minshall 1, sec se 5-15n-11e	*	2242
Sheridan, Thompson Bros. 1A, se se sw se 2-15n-11e	*	2099
J. P. Brady, 3 B. Parks, c se ne 9-15n-11e	20	1884
Jordan, Simms 1A, 200 ft n of c sw sw 33-16n-11e	5	2106
Osage—		
Barnsdall Oil Co., 5, sw ne sw se 23-24n-10e	33	1850
Pontotoc—		
Oil Roy, Bradley 1, nw sw ne 21-5n-5e (pb 2643 ft)	35	2646
Barbara Oil Co., Chapman 6, 190 ft s of sw se sw 25-5n-7e	62	2268
Mitten & Osborn, Powell 1, ne se ne 35-5n-7e	60	2341
Pottawatomie—		
Stout & Stewart, Weldon 1, sw nw nw 20-6n-4e (pb 3563 ft)	*	3733
Magnolia Pet. Co., Jones "C" 2, se sw ne 18-7n-4e	240	4000
Lynn 3, ne se ne ne 21-7n-4e (otd 3217 ft)	*	3232
Arkhoma Oil Corp., Bean 2, se sw nw 36-7n-4e	762	4210
Magnolia Pet. Co., Tull-Fyke "A" 4, sec nw 20-7n-5e (pb 4200 ft)	*	4210
I. T. I. O., Weans 3, swc 21-7n-5e	61	2831
Alma Oil Co., Curley 4, se sw nw 33-7n-5e	600	4082
Seminole—		
Vierson, Salma 1, nw sw nw 25-5n-7e (pb 2450 ft)	50	2471
Stephens—		
Geo. L. Pace, Bush "A" 6, ne nec nw 3-2s-8w	*	3230

*Failures; †Junked; ¶Million cu. ft. gas

ing out from Wilcox sand between 4755 and 4774 feet.

Second Try Is Failure

The second well in the new area north of Asher, Pottawatomie County, failed to get production in the Viola lime, where Atlantic Refining Company completed McCurry 1, NW NE SW 6-6n-4e, for 250 barrels in Viola lime, total depth 4209½ feet. The Viola lime failure is Harris 1, NE NW SW 6-6n-4e, a west offset to the discovery well, also drilling by Atlantic Refining Company. It will be carried to the Wilcox sand. At 4323 feet it had a hole full of water and casing will be set to drill deeper. A third test in the area, Atlantic Refining Company's Goss 1, NWc SE 6-6n-4e, is drilling below 2500 feet.

Two wildcat locations were made in the Seminole area last week. Leslie Rogers and associates will drill Kidd 1, NE SW SE 33-10n-8e, 1½ miles south of the South Cromwell pool, Seminole County. In the same county Hall, Troup and Moore have started work on Darmon 1, NW NW SW 3-6n-6e, north of the Konawa pool.

A wildcat failure for the week came with abandonment of the Pottawatomie County test of George L. Pace, Reilly 1, NE NE SE 2-9n-3e, which went into the second Wilcox sand, total depth 5375 feet. Top of the first Wilcox member was at 5329 feet and top of the second Wilcox sand at 5362 feet.

The Cleveland County wildcat of Gulf Oil Corporation, Taylor 1, SE SE SW 1-7n-2e, a mile north of the discovery well of the Noble field, has reached 6300 feet with both Wilcox sands due to be picked up prior to 7000 feet.

After a series of blowouts, followed by loss of circulation, The Texas Company is setting 7-inch casing string at 2556 feet in Smith 1, C NE NW 2-5n-12w, Caddo County wildcat, which will drill deeper.

First showing in the Grady County wildcat, a community venture in the head of the old Chickasha gas field. Smith 1, C SE SW 26-5n-8w, came with slight saturation and some gas in a core between 4125 and 4230 feet. This test, scheduled to reach 10,000 feet, continued drilling and is below 4200 feet.

Zenith allowable set at 5000 barrels daily

Arbitrary top potential for wells in the Zenith pool, Stafford County, Kansas, has been set at 5000 barrels, pending further consideration before the Kansas Corporation Commission October 27, when changes in the method of taking potentials will be considered.

Effective October 1 this pool was allowed to use a potential method by which actual output of the last half of an 8-hour test was augmented by efficiency in maintaining reservoir pressure. Calculations on this basis brought such wide divergence between well potentials that the matter was taken up by the commission October 7 and the 5000-barrel temporary maximum adopted temporarily. One well had potential of 41,600 barrels under the previous method.

The matter will come up at the time of holding the hearing to determine November allowable for Kansas.

Kansas Field Developments

New pools in Russell and Cowley; South Silica extended.

Wildcat activity moves to northeastern section of state.

Wichita. — Although close to two pools, the Russell County wildcat of Cities Service Oil Company, Rogg 1-B, C SL SE 20-14-13w, is classed as opening a new pool in Kansas with potential of 1287 barrels from the Kansas City lime section, total depth 3051 feet. The well is only a half mile north of the Letsch pool and three fourths of a mile from the North Hall pool.

A second new pool for the state was credited to the older area in Cowley County, where Pryor and Lockhart went to the Arbuckle lime in Wilson 2, NE NW 9-33-6e, to get a flowing well in an area whose previous production was from the Mississippi chat. This test is 11 miles southeast of the Winfield development. An offset well on the same lease previously made commercial output from the chat but this well was plugged because of its small output.

An extension of a half mile west was set up last week for the South Silica pool, Barton County, where Lario Oil & Gas Company and Atlantic Refining Company completed Reiser 1, NE NE NW 23-20-11w, for 1757 barrels potential.

Field development in Kansas continued its high pace so far as high output of producing wells is concerned and so far as keeping wildcat development up to a high level. A deviation in the wildcatting campaign was the move last week into the area of northeastern Kansas south and east of Topeka, where large blocks are being assembled. The area is northeast of the older fields of Greenwood and Woodson counties.

Producing wells predominated the completion list last week, with 21 of the 27 finished wells adding 28,241 barrels to the potential total for Kansas, a total now in excess of 3,500,000 barrels.

Turn of the wildcat play in Kansas to the northeastern part of the state followed several months of geophysical and surface prospecting in Osage, Shawnee, Jefferson, Jackson and Pottawatomie counties, an area northeast of the old fields of Greenwood and Woodson counties. Several large blocks are being assembled.

The first well to start in the area is being drilled by W. M. McNabb, Windfield, Kansas, producer, whose Fritz 1, SW SE NW 4-12-14e, Shawnee County, is 8 miles east of Topeka, the state capital.

Apparently the plight of many Western Kansas fields, which are without pipe line connection, is having little influence on prospecting, since a dozen wildcats were started in Kansas last week. The eastern part of the state drew most of these. National Refining Company will drill Lucas 1, SW NE SE 10-28-6e, Butler County. A machine has been moved in to test an area west of Fall river, Greenwood County, where the Russell B. Reed estate has location for Shell 1, NW SE 17-28-11e, Greenwood County. In the same county C. C. Whitaker and associates have location for Pottorff 1, SW NW 16-28-11e, southeast of the Severy gas field.

Western Kansas, however, drew most of the wildcats. In Ellsworth County, northeast of the Chase pool, Shell Petroleum Corporation has location for Warden 1, C Wp SW 11-19-9w. Rice County drew two tests: Cary 1, NE NW NW 30-18-8w, to be drilled by Spurrier and Bruce. It is between the Plogg and Geneseo pools. Stanolind Oil & Gas Company is starting Heine 1, SEc 21-19-10w, southeast of the Silica pool. A Rooks County test has been started by Phillips Petroleum Company, Tanzey 1, C NW SW 25-8-18w, southwest of the Bemis field. Southeast of this field but in Ellis County, Cities Service Oil Company has a semi wildcat going, Samuelson 2, C NE 36-11-17w. In Harvey County, southwest of the Graber pool, Derby Oil Company and Carey Drilling Company are drilling Jones 1, C NE NW 7-22-1w. A Barton County wildcat, a half mile north of production in the North Trapp field, is under way by Shell Petroleum Corporation, Bitter 1-B, SEc 6-16-13w.

KANSAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Barton—		
Texas Co., Hoffman 7, swc nw 6-16s-13w	1165	3331
I. T. I. O., Hoffman 5, sec ne 1-16s-14w	1553	3322
Shell Pet. Corp., Hoffman "C" 5, sec 1-16s-14w	1799	3360
Bruce Oil Co., Linsner 1, swc se 3-17s-13w	2724	3376
Stanolind O&G Co., Wm. Panning 11, cwl sw se se 2-20s-11w	2001	3275
P. Kowalsk 9, cwl sw se ne 11-20s-11w	1929	3286
Butler—		
Dustin, Maxwell 1, nw nw sw sw 31-24s-4e (otd 950 ft)	25	2694
Simpson Oil Co. et al, Steinhoff 3, nw ne ne 28-29s-6e	30	2214
Cowley—		
Arthur Brewer, Lewis 1, nw se ne 28-31s-4e	597	3349
Ellis—		
Darby Pet. Corp., Henderson 1, sec nw 7-11s-17w	3000	3436
Shell Pet. Corp., Rumsey 12, sw se nw 23-11s-17w	3321	3390
Ellsworth—		
Cities Service Oil Co. et al, Schroeder "A" 4, csl se ne sw 29-17s-9w	1997	3237
Skelly Oil Co., Moran 3, se se ne se 31-17s-10w	3447	3014
Greenwood—		
McGinnis, Dehlinger 1, sw se se 3-24s-13e	9	1653
Rice—		
Transwestern Oil Co. et al, Habiger "C" 1, swc ne 8-18s-10w	186	3265
Texas Co., C. Kleile 11, nec sw 34-19s-10w	1200	3319
Rooks—		
Shindheim & Haynes, Dorr 1, nec sw 13-9s-16w	15	3613
Russell—		
Phillips Pet. Co., Downing 4, nw se sw 19-13s-14w	263	2969
Signal, Bangart 1, ne nw nw 2-15s-14w (pb 2975 ft)	15	2993
Sedgwick—		
Prunty Prod. Co., Westerfield 1, sec sw 16-25s-1e	580	3338
Magnolia Pet. Co., Jabes 1, ne nw se 8-27s-2e	*	3306
Stafford—		
Pure Oil Co., Krey 8, se sw se 14-24s-11w	2385	3830
Magnolia Pet. Co., R. C. Gates 2, sw nw nw 35-21s-13w	*	3715
Woodson—		
Sinclair Prairie Oil Co., McClasky 9, sec nw 29-23s-14e (input well)		2231
Fleming et al, Central Life 1, swc 27-24s-15e	*	1560

*Failures; †Junked; ¶Million cu. ft. gas

[*Continued from page 56*]

of the independent operators' problem has always been the fact that these operators are, in most instances, not large enough to support their own safety organization and, their systematic, individual education being an absolute necessity, we are faced with the almost impossible task of reaching them. This can be accomplished only in one way and that is by organization.

"The one thing necessary to our getting started on this preliminary work is to find someone in position to underwrite the expense. I have mentioned that it seemed logical for the major companies to give certain types of work to service contractors and in some instances to use contract drillers. Bad accident experiences are reflected by high insurance rates. The cost of insurance is an item which is included in the contract price. It would be an interesting question to determine from an insurance standpoint just how much these independent producers and contractors have cost the major companies through their unfavorable accident experience. It is my belief that the basic rates charged for insurance are influenced to a large extent by the experience of the independent operators.

"It would be my suggestion that a proper program would call for the services of at least two capable safety engineers who are thoroughly experienced in the problems of the petroleum industry, these men to compile data and records on which to justify the organization of the independent operators.

If, at the end of two years, the necessary preliminaries have been accomplished, as they could be, we should find ourselves in a position to begin constructive work, building an organization with the more progressive units of these operators as a nucleus. By constant work, confidence in such an organization can be built up and its work made effective, serving all interests of the independent operators, protecting the ethical ones from those less concerned."

Anticipating safety hazards and correcting them before they develop is a little known function in the far-flung operations of the National Safety Council.

This was discussed by J. Woodward Martin of Dallas, Texas, when he spoke on the safe use of liquefied petroleum gas before a special section of the Congress devoted to "Safe Use of Petroleum Products."

"The National Safety Council is to be commended," said Martin, "for acquainting itself with the safety problems of this young industry in its early stages, before accidents occurred that might demand such attention."

The speaker projected a motion picture of the entire operation from the wells of the Lone Star Gas System to the preparation of the product for shipping in tank cars, from the manufacture of special consumer units to the servicing of customers in various parts of the country.

Each step was explained and the inherent hazards of every operation were pointed out. Methods used to maintain the highest possible degree of safety in handling the liquefied gas were explained.

The speaker revealed that more than 400,000 customers now use liquefied gas, while there were only about 20,000 ten years ago.

Oil well derricks are designed and built to support great stresses in drilling and pumping, but settling of one of the foundations may cause such a structure to twist and crumple under one-tenth of a normal load.

This fact was emphasized by James E. Dyer, Sun Oil Co., Tulsa, Okla., who gave an address on the "Safe Uses of Pumping Derricks."

Pointing out that the bearing surface required of a foundation varies with the type of soil, the speaker declared each derrick job presented a different problem. Not only does the foundation support the weight of the derrick, but it provides weight to anchor the structure against side sway caused by high winds.

The speaker charged safety engineers in the petroleum industry with failure to keep step in designing safe equipment, until legislation specified certain safety factors that must be included in every derrick constructed. Most of the derricks in use in Oklahoma and many other states, however, the speaker said, were built before these safety laws were enacted and are lacking in proper safeguards.

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West Texas Fields

Way opened for more development in widening 3 fields. Andrews County one of most active in north basin area.

Midland, Texas.—Productive limits of the Yoakum County sector of the Wasson field were broadened 1¼ miles to the east, and substantial extensions were likewise indicated for the Keystone field, Winkler County, and the Sand Hills field, Crane County. Successful completion of oil producers by these outposts will pave the way for considerable new development.

Crude price reductions posted the past week by all purchasers will curtail so-called unnecessary drilling in West Texas fields. However, the cut only amounted to 13 cents per barrel, and can be offset by the restoration of 6- or 7-day production weeks. Discontinuance of the Saturday production holiday late this month is generally anticipated, as the majority of the buyers have been forced to make deep inroads upon stored crude while operating on the 5-day schedule. Sufficient direct producing offsets completed and those pending from drilling tests in the Harper, Foster, Goldsmith, Wasson and Bennett fields are likely to force operators in the above field to continue active through the current year. Continuous development obligations have been assumed by some independents in the above busy drilling centers.

Honolulu Oil Corporation's R. M. Kendrick 1, SW NE SW Section 825, Block D, widened the Wasson field 1¼ miles to the east, with a natural flow of 151 barrels oil by heads in 10 hours at 5104 feet, or 1537 feet sub sea. First show of oil was logged at 4920-29 feet, with main pay topped at 4983 feet. Top of brown lime was called at 4040 feet, and first solid lime at 4510 feet, being 35 feet and 45 feet, respectively, lower structurally than Shell Petroleum Corporation Baumgart 1-D, nearest producer. The extension was carried 104 feet lower structurally into the lime section without encountering water.

Sid W. Richardson et al's J. M. Bashara 1-A, SW SW SE PSL Section 22, Block 77, Winkler County, is advancing the productive limits of the Keystone field 1⅛ miles to the northeast and a slightly greater distance due east, in developing 2300 feet of oil in hole while drilling at 3385 feet. First oil saturation was logged in sandy-lime at 3343-50 feet followed by 5 feet of oil saturated sand. Base of salt was called at 2260 feet, with an elevation of 2973 feet. J. R. Sharp et al's M. E. Crum 1, SW SW NW PSL Section 7, Block B-2, minor east extension, flowed 75 barrels oil with tools in hole after nitro shot at 3290-3344 feet, and is drilling at 3370 feet to try for a larger producer.

Sand Hills Extension

Extension of the Sand Hills area 1¼ miles to the southeast was given encouragement when Aloco Oil Company's J. B. Tubb 1-a, near SWc PSL Section 20, Block B-32, tested 2 bailers of oil per hour after 400-quart nitro shot at 4320-4406 feet. No water has appeared, although the hole is bottomed at 4504 feet. Acid treatments will be used to try and develop commercial production. Humble Oil & Refining Company's Tubb 20, SWc Section 18, north offset to the field's most southeasterly producer, yielded a small volume of gas and no oil after 200-quart nitro shot and acid treatments, aggregating 16,000 gallons, at 4434 feet. The hole has been plugged back to 4400 feet to retest after deepening to water at 4550 feet. It has an elevation of 2562 feet.

Atlantic Refining Company et al's Parker 1, C SE NE W. T. Ry. Section 264, Block G, 2½ miles northeast of the older section of the Seminole pool, Gaines County, was listed as a probable dry hole while drilling at 5210 feet, with an elevation of 3348 feet. No shows of any consequence were recorded in the big lime. However, strong gas pressure was passed up on the Yates zone. Humble Oil & Refining Company is credited with having paid $100 per acre cash bonus for ⅛ undivided interest in the S½ WT Section 232, Block G, about a mile southeast of the field's most northerly producer.

Andrews County has lately become one of the most active counties in the north portion of the basin as result of the launching of development of the Emma and Holt areas, near the south line of the county, and recent completion of a series of prolific wells on the east flank of the Means field. The Emma pool is slated to receive a major drilling campaign.

Rogers & Rogers' University 1, near C E½ SW Section 40, Block 9, south Andrews County wildcat, 1⅝ miles north by west of their small oil producer in the Holt pool, logged nominal oil stain at intervals in coring lime section at 4488-4523 feet, and was coring ahead. Top of lime was called at 4020 feet, with an elevation of 3149 feet. The test is also 3 miles east by south of the Emma pool, but on a non-related structure. Great Western Producers, Inc.'s, Holt 1, C NE NE T&P Section 1, Block 43, T-1-N, west offset to Rogers & Rogers' Holt 1, was drilling at 2010 feet. Location is on 160-acre site farmed out by Broderick & Calvert for ⅛ over-ride until development costs are amortized, then the property will be operated on a 50-50 basis. L. H. Wentz et al's W. F. Cowden 1, NEc T&P Section 1, 2 miles west of the latter test, was drilling below surface pipe.

Surface pipe has been landed with machine by Anderson-Prichard Oil Corporation for drilling 4 tests on a vacancy strip bordering on the north line of production in the Emma pool. Superior Oil Com-

WEST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Andrews County (Means)—		
Humble, Means 50	3740	4505
University 1-G	*	4942
Crane County (Gulf-McElroy)—		
Gulf, McElroy 180	286	3096
Ector County (Foster)—		
Barnsdall, Witcher 2	908	4195
Ector County (Goldsmith)—		
Cities Service, Cummins 4-D	610	4245
Gulf, Goldsmith 125	692	4266
Goldsmith 127	3120	4202
Goldsmith 128	924	4195
Landreth Prod. Corp., Scharbauer 1-Q	375	4192
Phillips-Pure, Cowden 41	1302	4168
Jessie Cowden 3	1187	4223
Shell, T&P Land 4-B	819	4288
T. P. Coal & Oil Co., Scharbauer 21	1580	4260
Ector County (Harper)—		
Blackstock Oil Co., T&P Land 6	2693	4170
Wentz et al, T&P Land 8-A	2453	4131
Ector County (Jordan)—		
Atlantic, University 5-B	1862	3645
Gaines County (Wildcat)—		
Devonian Oil Co.-Conkling, E. B. King 1	*	5518
Howard County—		
Ennisbrook Oil Corp., Texas Land & Mtg. Co. 19	874	2875
Magnolia, Sloan-Chalk 8	1211	2910
Powell, Tr., Guitar 1	*	3394
Jones County—		
Lewis Prod. Co., Sayles 1-B	*	1966
Lynch et al, Poe 1	*	3267
Loving County (Mason)—		
Argo Oil Corp., T&P Land 1	61	3984
Pecos County (Masterson)—		
A. Adams-ABC Oil Co., Masterson 7	*	1504
Pecos County (Payton)—		
British-American, Cordz-Empire 4	132	2053
Pantex Oil Corp., Pecos River 3	510	1823
Pecos County (Pecos Valley)—		
Wesley O&G Co., Francis-Lewis 2	637	1833
Pecos County (Wildcat)—		
Greer et al, Price 1	*	1919
Upton County (McCamey) —		
Basin Oil Prop., Baker-Conoco 8-A	1095	2385
Cardinal Oil Co., Wooley-Shell 17	522	2155
Porter Rankin-H. Nolan, Hughes 1	10	2031
Shell, Baker 3	943	2253
Ward County—		
Gulf, Estes 105	771	2660
Hutchings 107	221	3080
O'Brien 101	178	2766
Magnolia, Sealy 10-46	379	2851
Winkler County (Kermit)—		
Magnolia, Walton 187	1833	2915
Walton 188	1262	2915
State-Walton 16	790	3285
Yoakum County (Wasson)—		
Danvers et al, Lynn-Shell 2	230	5085
Denver P&R Co., Whittenburg 13	717	5056
Murchison-Fikes, Elliott-Standard 3-B	842	5125

*Failures; †Junked; ¶Million cu. ft. gas.

Texas Panhandle

Lefors producer makes good oil-gas flow

Pampa, Texas.—The Lefors sector, Gray County, contributed another large oil producer when The Texas Company's J. E. Williams 20, near C NE ACH & B Section 6, Block 1, flowed 1749 barrels of oil and 5,000,000 feet of gas natural from granite wash at 2880-90 feet. It has an elevation of 2843 feet. Oil production is usually found above sea level in this area.

Sinclair Prairie Oil Company et al's W. H. Bush 1, Potter County Ordovician project, is re-cementing 10-inch pipe at 3634 feet. The hole is bottomed at 3640 feet. Last gas pay in the regular horizon was logged at 3530 feet.

TEXAS PANHANDLE Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Carson County—		
Texoma Nat'l Gas Co., Crutchfield 2-E	¶24.3	2730
Gray County—		
Magnolia, Haggard 13	453	3290
Hutchinson County—		
Drilling & Explo. Co., Watkins 23	397	3055
Watkins 24	532	3015
Gray Co. Prod. Co.-Dave Rubin Herring 1	20	3257
ring 1	20	3257
McIlroy Oil Co., Halle 7	942	3068
Phillips, Cockrell 34	263	3068

*Failures; †Junked; ¶Million cu. ft. gas

pany's University 1, SEc Section 35, Block 10, northwest outpost, landed 7-inch pipe at 4065 feet.

S. H. Forgeron and Olson Drilling Company's Lockhart-Brown 1, southwestern Andrews County wildcat that has been in process of completion since last May, plugged back from water at 4981 feet to 4770 feet. Casing was gun-perforated opposite Yates at 2900-3150 feet to try and develop gas production to produce fluid showing from the deep lime after nitro shot and multiple acid treatments. The Texas Company's University 1-H, wildcat in the Shafter Lake sector, is installing cable tools at 4150 feet, having landed 7-inch at 4101 feet. This test experienced a gas blowout in the Yates, topped at 2790 feet. H. C. Wheeler et al's Farmers State Bank-White & Shelton, midway between the latter wildcat and the Means field, is also standardizing after landing pipe at 4280 feet. Top of Yates was called at 2930 feet, with an elevation of 3207 feet.

Frankley & Rice's W. A. Tunstill 1, northern Reeves County wildcat that has been showing for a small oil and gas well in Delaware sand at 3294-3305 feet, tested 7 barrels of 48 gravity oil in 17 hours while cleaning out 8 feet from bottom. Gas volume was rated at 2,000,000 feet daily.

Rumors persisted the past week in scout circles that an oil saturated lime section has been encountered by Gulf Oil Corporation's J. P. Swenson 1, C NW H&GN Section 25, Block 2, northeastern Garza County Ordovician prospect. Company reports credited the wildcat with being in hard lime and chert section at 7742 feet, with reaming operations underway. The drilling schedule calls for an 8000-foot test, if necessary to reach a decisive depth in the Ellenberger.

NORTH TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Archer County—		
Garonzik & Mallia, Brown 2, sec 2421	5	1401
Harvey Drl. Co., Edwards 1-B, blk 1	*	1348
Clay County—		
Gray & Thweatt, Enyart 2, blk 7..	*	295
Cooke County—		
Hudspeth & Harvey, Wilson 1....	5	966
Texas Co., Trubenbach 12.....	40	822
Jack County—		
Benoil Co., Rhodes 1-C	*	4740
Evans et al, Younger 1	*	800
Montague County—		
Burns et al, Mitchell 1	*	4061
Wichita County (K-M-A)—		
Chapman-McFarlin, Waggoner Bros. 3-B, lot 19	720	3800
Cooper et al, Waggoner Bros. 52..	624	3902
W. H. Hammon-Hanlon & Buchanan, Fassett 19, sec 2	872	3839
King Oil Co., Waggoner Bros.-Gulf 5, lot 11	744	3805
Moran Bros., Inc.-McRoberts Roy. Co., Waggoner Bros. 1, lot 9...	720	3807
Shell-Phillips, Preston 1-B, sec 27	776	3947
M. Staniforth & Co., Waggoner Bros. 3	650	3804
Wichita County (Jackson-Canyon)—		
King Oil Co. et al, Perkins-Cullum 2, blk 20	528	2638
Wichita County—		
Clark et al, Bickley 44	10	759
Hammon-Hanlon & Buchanan Fassett-Tuttle 6-A, sec 2.....	44	1440
Fassett-Tuttle 7-A, sec 2.....	42	1441
Krohn et al, Jennings 5, sec 12...	3	104
Wilbarger County—		
Consolidated Oil Co. et al, Ancell 1, sec 35	85	4127
Phillips, Servatius 1, sec 78	753	2639
Staley-Wynne & Co., Waggoner Est. 9-F, sec 32	245	2417
Young County—		
Strong et al, H. C. Kunkel 3, sec 605	1500	3950
Stuckey O&G Co., Hamilton 2-A, sec 3401	327	864
Willis et al, Stewart 3-B.....	*	865

*Failures; †Junked; ‡Million cu. ft. gas.

North Texas Development

Strawn dry, Panther outpost has promise in Detrital. K-M-A still starting tests, but operations are down.

Wichita Falls.—Adequate oil saturation in the Detrital zone overlying the Ellenberger was encountered by Sinclair Prairie Oil Company's Hood 1, west outpost for the Panther field, Archer County, to warrant the landing of 7-inch pipe at 4945 feet and standardizing for a production test. Situated in NEc ATNCL Section 18 and 1 mile west of Strawn production. It was dry in the latter horizon and showed saturation on electrical survey at 4955-63 feet. The hole is bottomed at 4985 feet. Blackwell Oil & Gas Company and Helmerich-Payne's Wilson 2, located 1000 feet south of the area's Strawn discovery, failed to sustain its production from the Detrital at 5116 feet although completed with a large rated potential last May, and encountered water in deepening to 5270 feet to become the deepest in the field. The hole has been plugged back to 5051 feet, and pipe will be gun-perforated opposite shows logged in the Strawn.

K-M-A field gained 9 new Strawn projects the past week, with operations underway on 7 of these authorizations. The current field report lists 78 operations, including 25 tests that have reached the deep lime and 15 drilling with rotary between casing points. The posting of lower prices by all purchasers will likely bring about further curtailment of drilling, which has been receding rapidly because of restricted market outlets. Introduction of a gravity scale ranging up to 45 degrees by some of the oil purchasers will temper the price cut in this particular area, as heretofore no consideration was given oil testing above 40 gravity.

Complete core record of the formation overlying the Strawn in the K-M-A field is to result from the residue gas input well being drilled by Continental Oil Company to utilize gas from its natural gasoline plant. This company's Waggoner Bros. 4-B, NEc Lot 6, BS & F Section 11, is coring a large diameter hole, and had progressed below 2400 feet last week.

Pumping gauge given Consolidated Oil Company et al's Ancell 1, situated in Wilbarger County and 3 miles west by north of nearest Strawn production, rated the outpost at 85 barrels daily after nitro shot at 4127 feet. Small amount of water that appeared originally is believed to be exhausted.

Search for new deep lime area and production extension for the K-M-A and Panther areas has been terminated indefinitely. However, the shallower Canyon lime, which has yielded five natural-flowing wells near the 2600-foot level in the Jackson pool, north of Holliday, may lead to more prospecting since this zone commands a higher production allowable.

Shappell Oil Company's Jackson 3-D, half mile south of the Jackson-Canyon area and on north line of Archer County, was drilling at 2110 feet.

Texas August production higher than in July

Indicated production in the State of Texas for the month of August was 1,443,015 barrels daily, an increase of 91,000 barrels per day over the July average. The total production for the month was 43,305,638 barrels, according to a report released last week by the Texas Railroad Commission.

The increase resulted from a reduction in the number of days Texas oil fields were closed in, rather than from an increase in allowables fixed by the commission.

The commission reported a total of 83,274 producing wells, which is a gain of 946 over July. The producers included 33,655 flowing wells and 49,619 pumping wells.

The total allowable for the month was 44,733,462 barrels, or a daily average of 1,443,015 barrels.

The average allowable per well was 16.8 barrels, 3.5 barrels less than the average for August, 1937. During the month pipe lines received 42,773,475 barrels. There were 82,562 barrels moved by tank car; trucks handled 223,032 barrels; fuel absorbed 5162 barrels; and 34,323 barrels were used for miscellaneous purposes.

In the table below the comparative figures for August, 1937, and August, 1938, are shown:

	August, 1937	August, 1938	Increase	Decrease
Number of Operators	5,005	5,546	541	.....
Number of Leases	14,658	16,103	1,445	.....
Number of Flowing Wells	30,153	33,655	3,502	.....
Number of Pumping Wells	44,357	49,619	5,262	.....
Total Producing Wells	74,510	83,274	8,764	.....
Beginning Lease Storage	4,464,197	4,893,101	428,904	.....
Total Allowable	48,531,123	44,733,462	.....	3,797,661
Daily Average Allowable (31 days)	1,565,520	1,443,015	.....	122,505
Daily Average Allowable per Well	21.1	17.3	.....	3.8
Indicated Production	46,960,980	43,305,638	.....	3,655,342
Daily Average Indicated Production	1,514,870	1,396,956	.....	117,914
Daily Average per Well	20.3	16.8	.....	3.5
Runs to Pipe Lines	46,447,557	42,773,475	.....	3,674,082
Tank Car Movements	49,051	82,562	33,511	.....
Truck Movements	149,374	223,032	73,658	.....
Fuel	38,352	5,162	.....	33,190
Miscellaneous	55,813	34,323	.....	21,490

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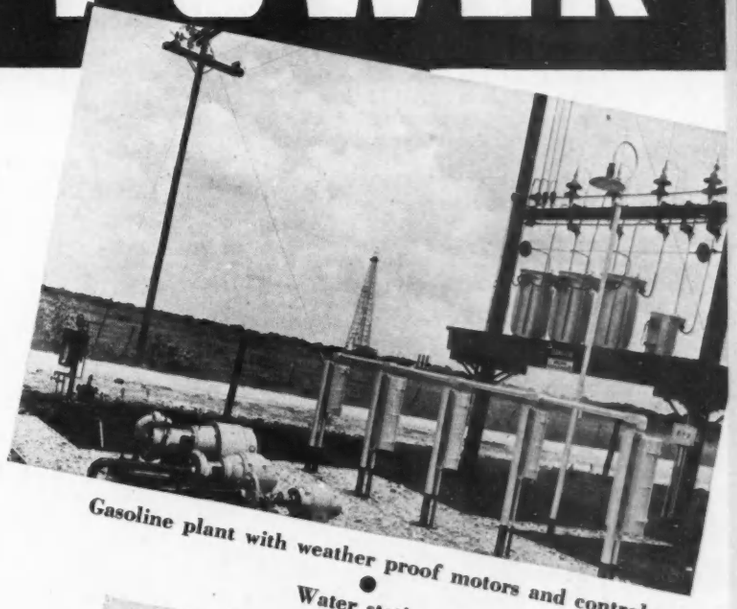
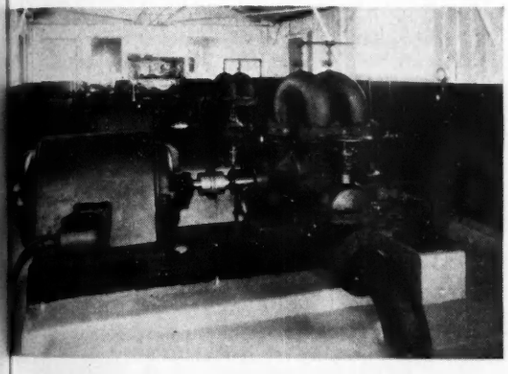


Gasoline plant with weather proof motors and controls

●

Water station



Interior of trunk line pipe line station

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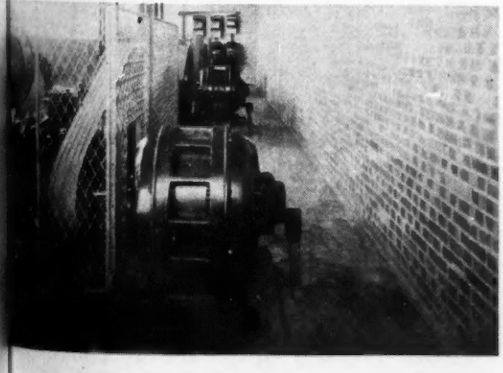
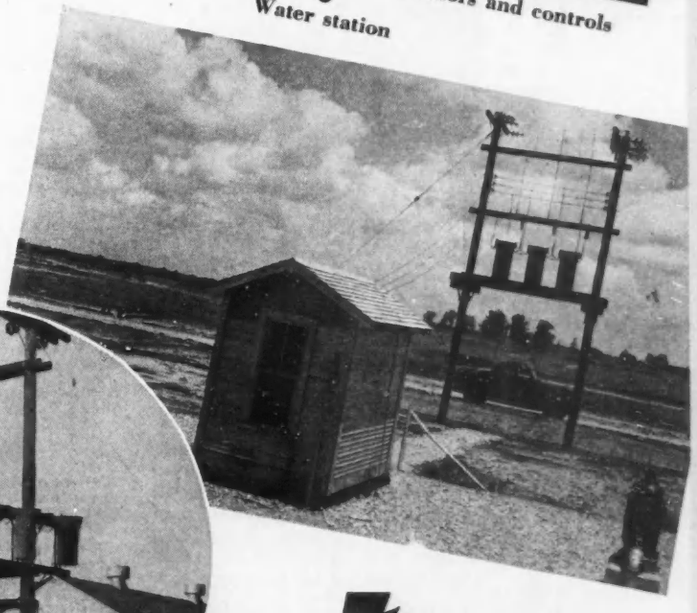
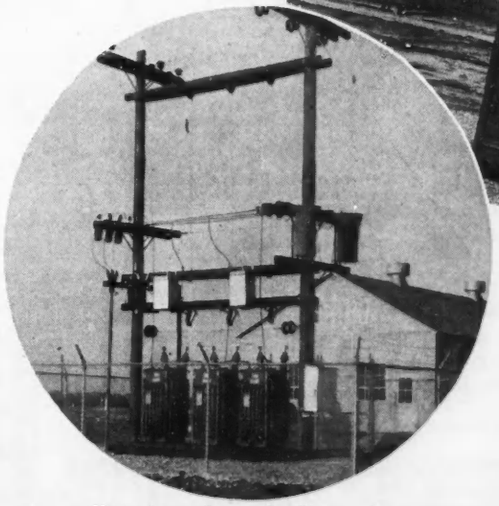
Compressor plant



A few typical uses for Purchased Electric Power in oil fields.





Exterior of trunk line pipe line station

PETROLEUM ELECTRIC POWER CLUB

East Texas Developments

Woodbine oil promise good in outpost of Buffalo gas area.

Lone Star has strong gas, little oil with salt water.

Tyler, Texas.—The development of oil production from the Woodbine by a north outpost to the Buffalo gas-distillate field, Leon County, appeared promising when T. J. Tucker et al's Sam Vane 1, near northeast corner of the Jas. Webb Survey, logged streaks of oil saturation in side-wall cores taken between 5595 and 5630 feet. Austin Chalk was logged at 4988-5196 feet, and top of the Woodbine series at 5492 feet. Broken sand below this level carries gas, according to the log. A string of 5½-inch will be landed for a production test.

Bunn Drilling Company's Bowlin 1, third prospective Woodbine producer for the Lone Star pool, eastern Cherokee County, encountered salt water in deepening to 4010½ feet, where it flowed a small volume of oil and water with strong gas pressure into pits. Tubing pressure recorded 1300 pounds. The hole will be plugged back to try for a completion.

John Mayo et al's Warroch 1, J. Sheridan Survey, northeastern Houston County wildcat, logged Austin chalk at 5545-5835 feet and was coring at 5880 feet. It is 1½ miles east by south of Percilla, and northeast of a small wildcat oil producer completed last year by Placid Oil Company.

Shreveport.—Although the leasing activity that resulted from discovery of oil in the Paluxy in west Sabine Parish, Louisiana, at Blue Lake several months ago, and a subsequent gas blowout in a Sabine County, Texas, wildcat, now sidetracking, has somewhat subsided, there is still some leasing going on in Sabine and San Augustine counties.

In Sabine County, between Geneva and Milam, R. L. Peveto of Tyler, Texas, leased approximately 2000 acres around the David Hoffman, Juan Ignetio Tifermo and adjacent surveys. Hugh Allen's Brooks 1, Isaac Lowe Survey, Sabine County, that had a gas blowout at 5644 feet, has used 14 whipstocks with a probability more will be used.

Seven miles southwest of San Augustine in San Augustine County, Pioneer Exploration Company has made tentative location for a Georgetown lime test in Southern Pacific Railroad No. 5 Survey. In the southwest part of San Augustine County, Republic's torsion balance unit continues to work.

Texas drilling permits drop to 144 for week

The Texas Railroad Commission last week approved permits for drilling 144 new wells in Texas, 72 less than were allowed the week before.

East Central Texas operators reported seven new locations. No permits were approved in the East Texas field.

There were 31 locations reported from operators in West Texas, while 14 permits were approved in West Central Texas.

Operators in the Gulf Coast area were allowed 28 new locations while Southwest Texas operators reported 16 locations, including 10 in Duval County.

There were 34 permits approved in North Texas with 10 in Wichita County. Panhandle producers reported 14 locations.

Wide spacing sought for Emma Cowden

The method of spacing in the new Emma Cowden field, Andrews County, was argued last week at a hearing before the Texas Railroad Commission. Most of the operators in the field here agreed on a program that would provide for 20-acre spacing.

Phillips Petroleum Company, however, sought 40-acre spacing, while Anderson-Pritchard Oil Company asked for 10-acre spacing in which program they were supported by The University of Texas which promises to be the principal royalty owner.

Testimony at the hearing indicated that the Emma Cowden field was definitely separated from the North Cowden field by a saddle. When this question was disposed of, the spacing problem arose.

Principal difficulty was to find a plan that would take care of the Anderson-Pritchard Company which has a narrow strip of 66 acres in the heart of the producing area. After being advised of the hearing, the company put four rigs in the field and had drilled their lease one well to 11 acres. Company officials indicated that they intend to drill one or two other wells on the tract if the full acreage is productive.

Anderson-Pritchard opposed any plan which would give their wells a lower allowable than other wells with similar potentials. They asserted that they had no reason to expect that an acreage factor would be included in any commission proration order. Other operators sought proration plans that would provide for an acreage factor of 50 percent or more, with proration units of 10 to 40 acres.

EAST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Joiner Area—		
Humble, Plowman 50-A (228½-ac)	.8500	3704
Thompson 29 (116-ac)	.6000	3689
McClanahan & Venable Oil Co., Birdwell 49 (150-ac)	.8600	3717
Retsal Drl. Co., Rollins 7 (22-ac)	.5000	3616
Weaver-Crim Corp., Stone 13 (49.26-ac)	.3400	3754
Kilgore Area—		
Atlantic, Godfrey 6 (16½-ac)	.7500	3675
Barnett Pet. Corp., Wills 2	.3600	3556
Carroll et al, Hendricks 2, blk 154 480		3559
Geier Bros. et al, Florence 4 (145-ac)	*	3890
Gulf, Christian 38-C (277.85-ac)	.5400	3724
Potter Bros. Prod. Co., Crim-La-Mode 5, blk 121	.1500	3575
Sharp et al, King 4 (2-ac)	.1500	3531
Shell, Willoughby 26 (57.7-ac)	.5000	3626
Suhr, Tr., Butts 1	.2000	3562
A. G. Gwynne, Fee 1 (1/3-Ac)	.8500	3495
Longview Area—		
Gen'l American, Sanders 20-B (59.88-ac)	.5600	3653
Humble, Smith 13 (90.3-ac)	.4200	3668
Smith 14 (90.3-ac)	.4500	3660
Riddle et al, A. A. Castleberry 2	*	3595
Shell, Richey 33 (167.38-ac)	.8500	3663
Richey 34 (167.38-ac)	.8500	3673
Richey 35 (167.38-ac)	.8800	3643
Stanolind, Lathrop 33-B, (63.68-ac)	.5000	3601
McKinley 5 (23.3-ac)	.7500	3584
Texas Co., Dearing 11 (70.71-ac)	.960	3670
Thomas et al, McGrede 2 (5½-ac)	.7800	3617
Washington Oil Co., Cobb 10 (25.6-ac)	.10,000	3556
Anderson County (Cayuga)—		
Roeser-Pendleton, Bowyer 3 (dd)	¶6 & 260	7642
Tide Water-Seaboard, McMahon 1 (54.4-ac)	100	4024
Anderson County (Long Lake)—		
Hunt Oil Co., Keeling 1 (81.4-ac)	225	5343
Franklin County (Talco)—		
Byrd & Frost, Philips-Gulf 22 (400-ac)	139	4304
Dallas County—		
Plaza Oil Co., Davidson 1 (110-ac)	*	3528
Kaufman County—		
Tyler & Smith, Phoenix Realty Co. 2	*	3527
Cass (Rodessa)—		
Bay Oil Co., Cobb 6, G. Crowder sur	190	6098

*Failures; †Junked; ¶Million cu. ft. gas

Only two bids on Mission River tract

The State Board of Mineral Development last week received only two bids on offerings in Mission River in Refugio County. L. R. Eddy offered ⅜ royalty for tracts 1 and 2. I. R. Sheldon made a logarithm bid ranging from ⅛ royalty to 51 percent of the royalty on tract 2.

Tracts involved in these bids, as well as tracts located in two creeks where the state had leases for sale promised to be involved in litigation, as land owners offsetting claimed title to the stream beds.

The Board announced that no awards would be made until land owners had an opportunity to appear and present their title claims.

Fitzsimmons extension

Laredo.—Sun Oil Company widened Fitzsimmons pool of Duval County another 1476 feet southwest with J. R. Bruggeman 3, which was in final stages of completion as the week closed. The well, in Section 288, cored sand at 4242-47 feet showing gas, and sand 4280-89 feet showing oil. Casing was landed on bottom. The field now extends more than 2 miles northeast and southwest.

In the North Sweden area, Duval County, Mid-Continent Petroleum Corporation's Rodriguez 1, Section 11, was coring below 6110 feet, expected to go considerably deeper. It is over 700 feet below the present deepest production in the field.

Munson field, McMullen County, received several setbacks. Bishop Oil Company et al's Nueces 4-A, NE SW Section 119, was abandoned at 1257 feet, and Cosner & Smith's Nueces 1, Section 177, was abandoned at 1161 feet, both being in the Mirando sand.

Southwest Texas Fields

Distillate flow from 9927 feet is South Texas' deepest. Sun pool in Starr County shows having multiple sands. Start another Frio County test as discovery starts pump.

Corpus Christi.—South Texas producing limits neared the 10,000-foot mark for the first time last week, when Richardson Petroleum Company's deep test in the Saxet field, Nueces County, flowed distillate under heavy pressure from a reported depth of 9927 feet. It is first completion ever effected below 9,000 feet in South Texas and is nearly 2,000 feet deeper than the present deepest production in this area.

The well Cain & Sechrist 26, on the southeastern side of the field, is across a downthrown fault from the main field's deep production. The test recently was drilled to 9927 feet, where it attempted to blow out. The blowout was averted, but drill stem stuck about 9985 feet. All efforts to pull it failed and the pipe was cemented in the hole. Late in the week, the test was cleaning through 3/32-inch choke on the drill pipe, pressure registering 3400 pounds. The well was making mud, gas and considerable distillate. It will be allowed to clean slowly before gauge is attempted.

This operation is 510 feet south of the Texas-Mexican Railroad and is 990 feet from the east line of Block 23, J. C. Russell Farm Lots. It is 90 feet south of No. 23 and is 660 feet east of No. 22. It is on a triple well location with wells 7 and 23, both of which are producing above 5000 feet. The area is a multi-sand producer above 5000 feet, but no production had been established in the immediate sector below that level until the new producer.

The new well is of great importance for several reasons. First, it possibly is in the upper portion of the Vicksburg. Second, it is the deepest well ever drilled in the Saxet field, further indicating the possibilities of the area as a reserve as far as the bit will penetrate. The Saxet structure, including its group of fields under separate names, covers well in excess of 20,000 acres. These deep sand lenses may therefore prove of great value.

Previous Deep Production

Recently, Richardson Petroleum Company opened a 7300-foot sand with Erwin 2, four miles northwest of the deep discovery, the well making distillate. That test was the previous deepest production in the Saxet field. Several other wells have been completed as producers in this zone.

The trend toward deep exploration has proved successful along the Lower Gulf Coast with a number of fields now finding oil below 7000 feet. Union Producing Company is the record holder for deep exploration with Minnie Brown 1, a heaving shale operation in the Agua Dulce field of Nueces County. It encountered difficulty by the hole heaving at 11,317 feet in the Hockleyensis zone, and at last reports was still attempting to condition the hole. It is projected to the Cockfield, expected above 13,000 feet.

The Texas Company's Mustang Island operator hit a bit of hard luck and efforts were being made to wash over stuck drill stem at 7746 feet. On Bird Island prospect, Kleberg County, Pure Oil Company et al's State 1, after sticking drill stem at 9223 feet, was drilling in sidetracked hole below 8725 feet. And, in the southeastern corner of Jim Wells County, Shell Petroleum Corporation was cutting out drill stem in Von Blucher 1. The test went into a gas sand at 7318 feet, tried to blow out and stuck drill pipe. Magnolia Petroleum Company, too, was fighting a stuck drill stem problem with R. V. De Garcia 1, bottomed at 8240 feet.

Transwestern Oil Company's Dunlap 1, 6000 feet southwest of East Premont field, Jim Wells County, was at an

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interesting stage late in the week. It has cored several sands with gas and oil odors in the Frio and is checking sufficiently high to indicate that it will extend the field in its 6600-foot pay.

Southern Minerals Corporation was preparing to complete Southern Alkali Plant 3, north of the Heterostegina production in the Saxet Heights field, Nueces County. It was drilled to about 7000 feet, plugged back and will perforate in the top 3 feet of sand encountered at 5077 feet. Lower portion of the sand carried water.

The Texas Company encountered a gas and distillate sand at 7062-76 feet in J. F. Weed 1, J. D. Newman survey, five miles east of Laward in Jackson County. The well was coring ahead below 7110 feet. On a drill-stem test from 7062-76 feet, using a water cushion, it built up 500 pounds working pressure in 10½ minutes. It recovered 420 feet of the water cushion cut with gas, plus 150 feet of mud cut with distillate, the test being through ¼-inch chokes.

Rutherford Oil Company extended the La Rosa field, Refugio County, one mile to the east and opened a new and deeper sand Friday when H. A. Schirmer 1, Section 1, on a drill-stem test at 6320-28 feet recovered 480 feet of oil, no water, and built up 95 pounds pressure through ⅜- and ¼-inch chokes, in 15 minutes.

East of the La Rosa field, Refugio County, Austin Corporation and J. W. Heard's N. S. Hunsdon 1, Block E, was coring below 5000 feet in the Frio zone. It had a sand and sandy-shale section in the Discorbis zone at 4215-35 feet, carrying oil show, but several drill-stem tests failed. The test is one mile north of Coty, Heard and Austin Corporation's Peck 1, drilled some time ago. The well was abandoned at 6626 feet, but recently started up again to rework in sand section at 5320-40 feet, where it originally gave promise of oil production.

La Rosa field received two 933-foot extensions in the deep sand to offset a disappointment in an effort to extend production about one mile to the east. Geophysical Service et al's two offsets to the deep discovery, being to the south and east, were finished at 5920 feet as good producers. Rutherford Oil Corporation's Schirmer 1, east of production, had the top sand at 5408-34 feet, but showed salt water on drill-stem test. The lower zone was found at 5924 feet and drill-stem test of the top 6 feet developed salt water. It was going ahead near 6300 feet.

Magnolia Petroleum Company's West 2-A, 1320 feet west of production in the West field, Jackson County, was completing to extend the area. It encountered a sand series from 5075-5108 feet and casing was set at 5093 feet.

Frank Grotes' Carlock 1, Lot 5, Block 72, about 1½ miles southwest of the McCampbell field, but in San Patricio County has set casing after drilling to 7143 feet. It cored about 25 feet of sand in the regular 7100-foot zone of the McCampbell field, where it will be completed. This extension places much acreage in the path of a new development program.

SOUTH TEXAS

Completions

LOWER GULF COAST

Company, Well and Location	Init. Prod. Bbls.	Depth
Aransas County—		
Atlantic, Moore 1, McCampbell	650	7313
Hidalgo County—		
Dean-Davis-Bolling, Guerra 1-B, Samfordyce	350	2857
Henshaw Bros., Guerra 1, Samfordyce	350	2871
Wheelock & Colline & Magnolia, Temple Lumber 1, Llano Grande grant	*	7506
Jim Wells County—		
R. B. Bryant, Stillwell 1, Alice	750	5314
Humble, Belitz 1, Staples sur	*	5850
Lavaca County—		
Midway Oil, Graff 2, Jack sur	*	3626
Live Oak County—		
Adair, Schultz Livestock 1, Pearce sur	*	3045
Gaines, Great Southern Life 2, Buchanan sur	*	2213
Gravis, Minnetex 1, Live Bee subd	*	3017
Schwab, Terrell 1, Henry sur	*	1583
Wallace & Jones, Burrows 1, Smith sur	*	2945
Refugio County—		
Copano, O'Connor 28-B, Tomoconnor	950	5966
Hewitt & Dougherty, Lambert 78, Tomoconnor	625	5899
Quintana, Heard 26, Tomoconnor	2700	5925
Williams 1, Tomoconnor	2800	5929
W. R. R. Oil, Mission Riverbed 3, Refugio	400	4932
San Patricio County—		
Conservative, Moore-Young 2, McCampbell	1000	7147
Illinois Petroleum, Wilson 1, Morris sur	*	6014
Victoria County—		
Stanolind, Henderson & Pickering 4, N. E. Placedo	470	6383
Vandenberge & Hill 4, N. E. Placedo	500	6378

SAN ANTONIO DISTRICT

Bastrop County—		
Ogden & Riddle, Riddle 3, Riddle	35	1777
Caldwell County—		
Magnolia, Gideon 3-B, Luling	32	2181
Ogden, Vickery 7, W. Dale	*	2730
Weigand Bros., Briscoe 5-A, Salt Flats	46	2713
Guadalupe County—		
Flowers, Koepp 1, Eshaurrizer sur	*	190
McCabe, Wilson 1-A, Darst Creek sur	lcn.	abn.
United N&S Development, Dix 10, Darst Creek sur	169	2554
Medina County—		
Whitfield & Draper, Ulbrich 1, Hoffman sur	*	1228

MIRANDO-JACKSON TREND

Company, Well and Location	Init. Prod. Bbls.	Depth
Duval County—		
Arkansas, Rossi 9, N. Sweden	250	4798
Continental, Collings 2, Hoffman	270	2801
Cox & Hamon, Cuellar (Points) 9, Hoffman	158	2567
Hoffman (Bascum) 2, Hoffman	99	2750
Crighton & Moore, Martin 1-A, Casa Blanca	79	1201
Martin 2-A, Casa Blanca	82	1201
Martin 4-A, Casa Blanca	*	1250
Darby Petroleum, Heintze 2, Hoffman	35	2802
Houston, Fitzsimmons 4, Fitzsimmons	625	4325
Lanning, Noake & Evans, Peters 3, Rancho Solo	106	1886
Magnolia, Duval County Ranch 9 (201), Eagle Hill	¶2	1495
Duval County Ranch 12 (291), Casa Blanca	¶5	1278
Weil Estate 15, Hoffman	97	2797
McAlester, Mew 1, Fitzsimmons	425	4669
Texas, Meek 3, Seven Sisters	*	2682
Jim Hogg County—		
Darby, Holbein B-7, Las Animas	115	1825
McMullen County—		
Bishop, Nueces L&L 4-A, Munson	*	1257
Cosner & Smith, Nueces L&L 1, sec 177	*	1161
Jones, Ezzell 38, Ezzell	331	1580
Kirby, Chylek 1, Hernandez sur	*	1285
Marion, Lark 7, Calliham	*	1052
Schimmel, Kountz 1-A, San Jose	22	1186
Taylor, Nueces L&L 1, Munson	*	1268
Webb County—		
Harvey & Henderson, Benavides 1, sur 459	*	3500
Killam, Bruni 1, Albercas gr	*	2273
Zapata County—		
Buffalo, Hinnant 2-B, Mirando Valley	30	1888
Dulup, Trevino 38, Escobas	*	1215
Kirkwood & Morgan, Flores 1, sec 240	*	1809

*Failures; †Junked; ¶Million cu. ft. gas.

Sun pool, Starr County is multi-sand area

Mission.—Proving several new stands in the Frio zone, Sun pool, recently opened in northeastern Starr County, is certain to become a multi-zone area. The area is being closely watched as a possible major producing district for South Texas and these new zones are looked upon as being of great importance.

Sun Oil Company's A. Aliverez et al 1, SW NE Section 239, ¾-mile northwest of the discovery, encountered a gas sand at 4547-55 feet, drill-stem test at 4500-55 feet recovering 375 pounds pressure and 250 feet of gas-cut mud in 7 minutes. A second sand was found at 4605-21 feet, which was tested, recovering 75 feet of oil cut mud and developing 360 pounds pressure in 3½ minutes. A test of the same zone at 4611-21 feet recovered 200 feet of oil, 30 feet of mud and a heavy gas pressure. The test then apparently missed the regular 4700-foot sand, but found a new zone at 4802½-13 feet, running a drill-stem test at 4790-4813 feet where it recovered 50 feet of gas cut sand and developed 525 pounds pressure in 7½ minutes.

Frio County well pumping; start another operation

San Antonio.—Assured a pumping producer from the Austin chalk, Humble Oil & Refining Company has moved 1713 feet due north of the Shattel prospect discovery well for a second operation. The new Frio County wildcat is located in the southwestern portion of the Rips Survey and is on the Marrs McLean land. It will test the 5300-foot Edwards limestone, which failed to produce in the first test.

C. C. Schley 1, discovery well of the field, was plugged back from 5309 feet to 4800 feet and has been placed on pump. The test is located in Travalder Survey No. 174, topped the chalk at 4685 feet and found saturation below 4700 feet.

Bastrop County gives promise of a small Austin Chalk area with C. R. Franklin et al's Thaxton and Yarrington 2, Banks Survey, 6 miles southwest of Bastrop encountering Austin chalk at 1968 feet, drilling to 2041 feet and setting casing. The previous test also showed some oil, but was unsuccessful on a completion test.

Teas, Ashley and Hinton's Grizzard 1, Graham League, on the Smithville prospect in Bastrop County, also was ready for a test. Drilled to 7175 feet, it was awaiting 4¾-inch casing to be set on the Edwards limestone topped at 7023 feet.

Another producing spot opened in Pettus district

Beeville.—Pettus district was adding another producing spot with Herbert Aid et al's second test on the Imogene Hall tract. The test cored sand and sandy shale at 3564-90 feet and shale to 3598 feet. A drill-stem test of the section recovered 370 pounds working pressure together with 20 feet of mud cut with oil in 7 minutes. The well is now in process of completion with casing landed at 3595 feet.

This discovery is 3000 feet north of Hall 1 and is 1½ miles north of the recently opened Tulsita area, also producing from the Pettus sand. The Tulsita area was opened by Atlantic Refining Company. The new discovery is in the George A. Kerr Survey, Abstract 210.

Texas Gulf Coast

League City, Galveston County, wildcat is threatening. Four miles north of Anahuac is prospective new spot. Fairbanks extension is gas well in new horizon.

Houston. — The most outstanding wildcat in the Texas Gulf Coast is Midwest Royalty Company's Louis Lobit 1 at League City, Perry & Austin Survey, Galveston County. The wildcat will probably open some kind of a producing area. Little information has been given out and with this information and conflicting rumors the true status is in doubt. However, according to reliable sources the well has cored several broken shows of oil and gas but only one show from 9010 to 9018 was good on an ether test. Casing is being run for a production test. Lobit 1 was drilled to 9197 feet in shale and cored sand and shale with an odor of oil and gas from 8847 to 8853 feet; from 8853 to 8860 feet was sand and shale with an odor of gas, no cut; from 8860 to 8868 feet was sand with an odor of oil, no cut; from 8953 to 8955 feet was mostly shale with an odor of oil and gas with no cut; from 8955 to 8961 feet was an oil and gas odor and no cut; from 9010 to 9018 feet was sand and shale with an odor of oil and gas and a good cut of oil. The Marginulina formation was topped at 8023 feet and the Frio at 8149 feet.

Considerable leasing activity is reported in the League City area with Midwest Royalty Company taking considerable more acreage. Several independents are reported to be paying premium prices for both leases and royalty. It is expected to be a gas and distillate well.

Four miles south of Anahuac, Chambers County, Salt Dome Oil Corporation is preparing to make a production test on Ogden 1, E. Douthit Survey. After drilling to 7813 feet the operators ran 5-inch casing and propose to perforate it from 7515 to 7525 feet. At this horizon the well encountered a gas show as reported some time ago. From 7550 to 7580 feet was salt water. The company will try to complete the well as a gas producer.

Continental Oil Company and McAlester Fuel Company have decided to carry Sweeney Estate et al 1, Ogburn area, one mile northwest of Killam's Sweeney 1, deeper after coring a sand and shale formation which showed gas and distillate with salt water on bottom from 6507 to 6522 feet. At the end of the week the wildcat was drilling in shale at 6800 feet.

Approximately 3500 feet southwest of production at Eureka, Harris County, Tide Water Oil Company is drilling deeper in Ford 1 after coring broken formations with shows of oil and gas. The well cored from 7718 to 7726 feet and from 7718 to 7720 feet was sand with a good show of oil and the sands showed 13 percent saturation. From 7720 to 7726 feet was broken formations with oil shows. Another core from 7760½ to 7770 feet showed gas and distillate, the last 4 feet salt water. The well was coring below 7814 feet at the end of the week.

About 2000 feet northeast of Stanolind Oil & Gas Company's Look 1, which extended Fairbanks, Harris County, 4000 feet, the operator's Schumacher 1, J. Doswell Survey, was completed as a gas producer in a new horizon. After flowing gas and salt water from 7201 to 7206 feet the well was plugged back and was perforated with 30 holes from 6935 to 6940 feet. On a production test it made 6,300,000 cubic feet of gas daily through ¼-inch choke with a tubing pressure of 1650 pounds and a casing pressure of 2000 pounds.

The Mt. Houston prospect, Harris County, is going to receive its first wildcat this year. Jack Frazier and Bunte made location for Mrs. L. Griffity 1, center of lots 5 and 6 of Block 27 or approximately 2600 feet from the west line and 1200 feet from the south line of the Adams Smith Survey, Abstract 694. Also in Harris County, Highlands area, Jack Frazier made location for Long 1, beginning at the southwest corner of survey then east along the south line 2578 feet thence 330 feet north at right angles in the R. White Survey, Abstract 84. In Trinity County, Max V. Scott made location for First National Bank of Trinity 1, two miles south of Trinity and 1200 feet south of the north line and 150 feet west of the east line of a 185-acre tract in the William Beasley Survey.

F. A. Gillispie's Kirby Petroleum Company 1 at West Cotton Lake, Chambers County, is being tested again. At the end of the week the company had perforated from 6416 to 6434 feet with 35 shots and set screen. The well is being washed. The previous week the wildcat came in flowing 6 barrels of fluid per hour from perforations at 6416 to 6434 feet.

Shell Petroleum Corporation has finally completed McFaddin 2 at Clam Lake, Jefferson County, in a new sand as a small producer. The well was pumping 153 barrels of fluid daily, 42 percent basic sediment and mud and three percent water after casing was perforated from 3845 to 3855 feet.

TEXAS GULF COAST
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Anahuac—		
Gulf, Sphyrett 3	799	7129
Humble, Middleton 34	706	7085
Tyrell 10	669	7085
Clam Lake—		
Shell, McFaddin 2	153	3855
Dickinson—		
Atlantic, Jones 8	698	8133
Fairbanks—		
H. E. Williams, Stern 5	395	6838
Windsor Oil, Ley 2-B	626	6855
Friendswood—		
Humble, Beamer 13	574	6051
Herman Hospital 5	612	6047
West Prod. Co., 3	583	6045
Hardin—		
Atlantic, Wilson 3	471	7548
Geo. Echols, West et al 1	424	7624
Humble, Partlow 4-A	449	7598
Hastings—		
Pearland Oil Co., Alexander 1	651	6112
Stanolind, Moore C-1	581	6080
Hitchcock—		
N. W. Hunter, Arco 3	*	5171
Katy—		
Stanolind, Robertson 1	¶41	7500
McCroskey—		
Pierce Estate, Fee 5-A	*	6645
South Bay City—		
Hamman Expl. Co., Badouh 2	165	8163
South Cotton Lake—		
Humble, Casey 3	132	6500
Thompsons—		
Humble, Lockwood Sharp 20-X	*	3749
Withers—		
Bankline Oil Co., Bement-Broussard 1	150	5545

*Failures; †Junked; ¶Million cu. ft. gas.

South Louisiana

Gas-distillate production north of Tepetate in Acadia. Five more wildcats have good evidence of discovery.

Lake Charles.—A new gas-and-distillate field discovered in Acadia Parish, several important wildcats that have indicated they would produce, discovery of new horizons in oil fields and new interesting wildcat locations featured operations in South Louisiana last week.

Atlantic Refining Company opened the gas-and-distillate when Klumpp 1, Section 12-7s-2w, northeast of Tepetate, Acadia Parish, flowed 84 barrels of 52.8 gravity distillate and 3,250,000 cubic feet of gas daily from lower Marginulian-Frio sands at 7960 to 7970 feet. Flow was through ¼-inch choke and tubing pressure was 2830 pounds and casing pressure 2910 pounds. Hole was drilled to 8705 feet in shale and cored broken formations with shows of gas and distillate from 7943 to 7969 feet. Seven-inch casing was set at 8698 feet and perforated with 30 holes from 7960 to 7970 feet.

Shell Petroleum Corporation's Hazel Burdin 1, Section 15-14s-12e, at West Lake Verret, St. Martin Parish, may open a new oil field. Last week the wildcat was drilling in sandy shale at 7892 feet after making two drill-stem tests up the hole which were unsuccessful but showed oil and gas. A drill-stem test from 7820 to 7827 feet showed 7 stands of one single of gas-cut mud,

the top two joints being oily mud. After the testing tool was opened 1½ minutes the seat slipped to 7823 feet and the crew failed to get a shut off. On a 5 minute drill stem test with the packer leaking the crew recovered 19 stands of gas-cut mud from 7815 to 7827 feet. Another drill-stem test was made with the seat at 7818 feet and it showed 500 pounds pressure and 10 gallons of 57-gravity distillate in 5 minutes.

With very little information being given out on Herton Oil Company's Thistlewaite Lumber Company 1, Section 60-4s-4e, in the Beggs area, St. Landry Parish, it is being watched with much interest as it may open a new field. Last week the wildcat was reported below 9700 feet in shale. It tried to blow out from around 7000 feet and 500 sacks of special drilling mud had to be pumped into the hole.

The Texas Company's La Terre Company 1, Section 1-20s-21e, Golden Meadows prospect, Lafourche Parish, has lived up to advance notices that it would open a new producing area. Last week a drill-stem test from 9975 to 10,005 feet recovered three stands of distillate with no water. A 2900-pound pressure was shown. Well was killed and will perforate casing higher for another test. If it does not show for a producer at other depths it probably will be completed in the 9975-foot horizon as a gas-and-distillate producer and gas from it used to drill State Catfish Lake 1 in Section 77-19s-21e.

Although Shell Petroleum Corporation continues to drill deeper in Godchaux Sugars 1, Section 97-11s-7e, La-

SOUTH LOUISIANA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Charenton—		
Edwards & Aber, Catholic Church 1	*	3060
Henry De Arman, South Coast 1..	*	8465
Jeanerette—		
Herton Oil Co., Roanes Sugar 1-A (dr to 10,778 ft)	440	9960
Leaville—		
William Helis, City of New Orleans 1-A	*	8969
Lockport—		
Magnolia, Miller 23 (dr to 8002 ft)	21	4358
South Roanoke—		
Continental, Sturdivant 1 (dr to 12,088 ft)	84	9880
Woodlawn—		
Union Sulphur, Miller 1	163	8908
Union Sulphur, Miami Corp. 1, Cameron Parish (Willow Lake), 33-12s-8w	*	9719

*Failures; †Junked; ‡Million cu. ft. gas.

Place prospect, St. John the Baptiste Parish, it is generally believed that the wildcat has cored enough broken formation to produce oil. Last week it was coring in hard sandy shale with streaks of lime at 10,820 feet. Core from 10,481 to 10,484 was sand showing oil and from 10,484 to 10,487 feet, sand and shale with oil shows. It cored other shows of oil up the hole.

Shell Petroleum Corporation is drilling another deep wildcat at South Houma, Terrebonne Parish. Peters 1, Section 73-18s-18e, was drilling in sandy shale with no shows at 10,752 feet. Last week a broken oil sand was cored from 10,634 to 10,649 feet. From 10,575 to 10,576 feet was sand with a faint odor of oil, and from 10,586 to 10,587 feet was sand and shale with a show of oil.

Humble Oil & Refining Company's Wilberts 8 at Bayou Blue, Iberville Parish, which discovered a new sand at 5209 feet, is drilling deeper in search of other new sands. Wilberts 8 cored oil sands at 5203 to 5209 feet and sand and shale with shows of oil from 5209 to 5214 feet. A production test of this sand showed an initial production of 16 barrels per hour but the well died. At the end of the week the deep test was drilling in shale at 5583 feet.

In the Leeville field, Lafourche Parish, The Texas Company is drilling below 8150 feet in L. L. E. Leeville 70. A new sand was cored with an odor of oil from 8084 to 8094 feet. This test has cored a number of sands below the established producing horizon at Leeville.

Gulf Oil Corporation is attempting to open a new oil sand at Timbalier Bay field, Lafourche Parish. State Timbalier Bay PP 4, 23s-21e, was perforated with 20 shots from 5330 to 5340 feet and a drill-stem test showed 13 stands of pipe line oil but when a production test was made it would not flow. The hole was washed with water, then swabbed and then washed with oil. Operators are pulling the setting to try another production test.

At Bay St. Elaine, Terrebonne Parish, The Texas Company will try to open a new sand with State Bay St. Elaine 18, Section 18-22s-18e. A broken formation with an oil show was cored from 6633 to 6689 feet and while reaming at 6775 feet the well tried to blow out, showing oil and gas. It was killed and operators are mixing mud to resume operations.

Finds Deep Salt

In the Lake Barre field, Terrebonne Parish, The Texas Company's State Lake Barre 42, Section 40-21s-10e, is waiting on screen to make a production test of a new producing horizon, the deepest at Lake Barre. The well was drilled to 11,333 feet in salt, topped at 11,301 feet, believed to be the deepest encounter of salt in this area. Seven-inch casing was set at bottom and perforated with 140 holes from 10,460 to 10,507 feet. An 8-minute drill-stem test recovered a ½ joint of mud and 1½ joints of distillate.

A new gas-and-distillate sand was discovered at South Roanoke, Jefferson Davis Parish. Continental Oil Company completed Joe Sturdivant making 84 barrels of 55.6-gravity distillate and 1,000,000 cubic feet of gas daily through 5/32-inch choke, with a tubing pressure of 5200 pounds, from perforations at 9865 to 9880 feet. The well was drilled to 12,088 feet in shale and plugged back and perforated with 36 holes.

At Jeanerette field, St. Mary Parish, Herton Oil Company discovered a new producing horizon when Roanes Sugar 1-A was completed after casing was perforated with 35 holes from 9935 to 9960 feet. The well made 440 barrels of 39.5 gravity oil daily, 6 percent basic sediment and water, through a 3/16-inch choke with a tubing pressure of 975 pounds. Drilled to 10,778 feet, it was plugged back and several tests were made before final completion.

The Texas Company's second well at Jefferson Island field, Iberia Parish, cored a new sand last week but was drilling ahead to the regular producing horizon. State Lake Peignuer 1, 12s-5e, cored oil sands 7573 to 7584 feet; sand and shale with shows of oil from 7625 to 7688 feet; oil sands 7586 to 7596 feet; lime and broken sands with oil shows from 7688 to 7708 feet and soft sand showing oil from 7713 to 7745 feet. At the end of the week the well was down to 7769 feet in sandy shale.

In St. Mary Parish, The Texas Company's Wax Bayou Company 1, Section 21-16s-12e, Bateman Lake, is drilling below 11,020 feet in shale—below the established producing horizon. Water sand was logged around 11,000 feet. A sand with an odor of oil was cored at 10,920 to 10,945 feet. Also in St. Mary Parish, The Texas Company's State Horseshoe Bayou 2 at Horseshoe Bayou, St. Mary Parish, was drilling at 11,151 feet in water sand. It is also below the established producing horizon for Horseshoe Bayou field.

On the Bayou Sorrel prospect, Iberville Parish, California Company announced location for Schwing Lumber & Shingle Company 1, 2500 feet south and 400 feet east of the northwest corner of Section 96-10s-10e. This is the operators first wildcat location in this territory. Continental Oil Company has made location at Convent, St. James Parish, for Realty Operators 2, 1090 feet south and west of Realty Operators 1, in Section 16-12s-17e. On the south flank of Edgerly field, Calcasieu Parish, Union Sulphur Company made location for Louisiana Sulphur Mining Company 1, 1770 feet east and 200 feet south of the northwest corner of Section 33-9s-11w. Another location was made by Federal Royalty Company in Calcasieu Lake. State Calcasieu Lake 2 is 600 feet northwest of State 1 in 13s-9w, Cameron Parish.

PROTEST AGAINST SALE OF OIL AND GAS LEASES BY DEPARTMENT OF INTERIOR COMMISSIONER, GENERAL LAND OFFICE, WASHINGTON, D. C.

The Commissioner, General Land Office, Washington, D. C., is advertising in this and other publications for bids receivable up to 12:00 o'clock (Noon) October 31, 1938, for the sale of oil and gas leases covering the lands which are described in said advertisement, as follows, to-wit:

Unit No. 1. The Principal Island, East Timbalier Island, known locally as Bird Island, located in fractional Secs. 34, 35, and 36, T. 23 S., R. 21 E., Secs. 2 and 3, T. 24 S., R. 21 E. and Sec. 31, T. 23 S., R. 22 E., Louisiana Meridian, situated on the Gulf Coast of La Fourche, State of Louisiana, lying above the elevation of mean high tide, containing 295.77 Acres more or less.

Unit No. 2. Two islands adjoining Unit No. 1 in a Northeasterly direction between said principal Island and Raccoon Pass, Island No. 1 located in fractional Sec. 31 and Island No. 2 located in fractional Sec. 32 both of T. 23 S., R. 22 E. Louisiana Meridian, situated on the Gulf Coast of La Fourche Parish, State of Louisiana, lying above the elevation of mean high tide, containing 11.69 and 69.29 Acres, respectively, more or less.

Notice is hereby given to all prospective bidders and to all others whom it may concern, that the State of Louisiana has protested against and does not acquiesce in the holding of the Secretary of the Interior referred to in said advertisement, and contends that it, the State of Louisiana, is the owner of all the lands described in said advertisement and of the oil, gas and other minerals therein and of the rights to minerals therein and thereunder, and that neither the United States of America nor any official thereof, including the Secretary of the Interior and the Commissioner of the General Land Office, have any right, power or authority to grant any mineral lease covering or affecting said lands or any part thereof and that the State of Louisiana will enforce and protect its rights as owner of said lands and every part thereof and its rights as such owner to oil, gas and other minerals therein or thereunder.

STATE OF LOUISIANA,
By Lucille May Grace, Register State Land Office
By Gaston L. Porterie, Attorney General of the State of Louisiana

North Louisiana Fields

Shreveport's third well looms; one test is abandoned. DeSoto Parish wildcat has good show of oil and gas.

Shreveport, La.—One-half mile south of the two producing oil wells in the new Shreveport field, R. E. Allison's State of Louisiana 1, SE SE 28-18n-14w, Caddo Parish, last week gave indications of being the new field's third basal Glen Rose lime producer when it cored saturation, and prepared to run final casing. Total depth is 5618 feet.

From cores, which however gave rather poor recovery in the basal Glen Rose lime (Pettet), the present test logged only 14 feet of saturation, 5 feet less than logged by the second well of the field in SE NE 28-18n-14w. The fourth and last core taken in the present test from 5598 to 5618 feet showed hard tight lime with no showing, indicating the saturation had all been logged above. On the other hand the electrical log showed 23 feet of porosity and was 17 feet higher on top of porosity than Ellerbe 2, the second well.

Five miles south of the two producing wells, Hollywood Oil Corporation's C. & B. Realty Company 1, NE NE 22-17n-14w, south of the Shreveport city limits, was drilling Thursday at 5350 feet in black shale with streaks of lime, after checking 36 feet lower than the discovery well on base of anhydrite stringer but only 12 feet lower on top of the Jeter horizon of the Glen Rose.

F. W. Martin and Superior Oil Corporation dismantled rig last week at Andrew Querbes 1, irregular Section 37-17n-13w, Caddo Parish, 6 miles southeast of the discovery well and diagonally across the Shreveport city limits from the discovery well. Total depth is 6155 feet. The test checked low throughout but there had been talk of deepening hole to the lower Marine. Three other tests are drilling in the Shreveport field.

During the last week the Shreveport city council passed on first reading an ordinance to go into effect October 25 setting the drilling permit fee for townsite tests at $1000. A committee of five composed of one geologist, one independent oil operator, and representatives of insurance companies has been named by the Shreveport city council to work as an advisory board in drawing up regulations for townsite drilling. Shreveport city officials recently visited Oklahoma City to study regulations on townsite drilling there and the Shreveport regulations are expected to follow in the main those in effect there.

Four at Cotton Valley

The Cotton Valley field, Webster Parish, North Louisiana's most active field added four new producers last week, including two Holloway sand (Travis Peak) oil wells and two lower Marine (Bodcaw) gas-distillate wells. The shallow Pine Island and Zwolle fields are besides Cotton Valley, North Louisiana's most active districts.

Samuel S. Alexander was ready last week to drill plug and test Stell A-1, NE NE 5-12n-16w, DeSoto Parish wildcat, which logged a good show of oil and gas in sandy lime in the Tokio series. Total depth is 2761 feet. Electrical log indicated good porosity and fair resistivity. In the same parish in township 10 north, range 13 west, Ohio Oil Company is not renewing leases as rentals fall due. In Union Parish, four miles northeast of the town of Bernice, Continental Oil Company has secured several hundred acres on assignment in township 22 north, range 3 west.

Continental Oil Company, whose Singer Manufacturing Company 1, C N½ NE NW 3-15n-11e, Madison Parish, recently was abandoned at 4335 feet after finding a salt dome, is planning to make its next location there about one-half mile southwest of the abandoned hole. DeSoto Oil & Gas Company is seeking major company aid in drilling another test east of the Lake Bisteneau area where a two-mile east extension wet gasser was recently completed. Union Producing Company is taking leases in township 23 north, range 7 west, Claiborne Parish. Around the Shongaloo field, Magnolia Petroleum Company continues to lease in townships 22 and 23 north, ranges 9 and 10 west.

NORTH LOUISIANA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Bossier (Sligo)—		
Triangle Drlg. Co., Roy A-2, 18-17n-11w	175	3144
Bossier (Bellevue)—		
Premier Inv. Co., Buckelew 4, 16-19n-11w	8	417
Caddo (Shreveport)—		
F. W. Martin & Superior, Querbes 1, 37-17n-13w	*	6155
Caddo (Pine Island)—		
Bobby Manziel, Muslow 1, 6-20n-15w	75	1650
Papdokis & Poppos, Spell 4, 28-21n-15w	85	1655
Midfield Oil Co., Ramsey 1, 32-21n-15w	50	1388
De Soto (Wildcat)—		
Collins et al, Joyner 2, 28-11n-12w	*	2978
Morehouse (Monroe)—		
Inter-State Nat. Gas Co., Fee 84, 22-21n-4e	¶4½	2150
Ouachita (Monroe)—		
Hope Prod. Co., Cole Hrs. 13, 7-19n-4e	¶1	2175
Sabine (Zwolle)—		
Major Oil Co., Bowman-Hicks B-1, 8-7n-12w	*	2913
Webster (Cotton Valley)—		
Morgan et al, Hope A-2, 24-21n-10w	456	8190
H. L. Hunt, Pardee 1, 24-21n-10w	624	8777
Union Prod. Co., Stewart 2, 28-21n-10w	200	5910
North American Consolidated Oil Co., Stewart 3, 29-21n-10w	135	5912

*Failures; †Junked; ¶Million cu. ft. gas

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SHREVEPORT LOUISIANA

Lake Charles—Houma—Converse
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Cotton Valley—Greggton
Magnolia—Houston

Arkansas Fields

Four more producers added at Schuler

El Dorado, Ark.—Four Jones sand (lower Marine) producers, one of which extended production one-fourth mile west, were completed last week in the Schuler field, Union County, to bring the total oil wells there from that horizon to 86.

Some leasing continues in South Arkansas where many geophysical crews are still active. In the Hibank area of Union County, east of a block held by Root Petroleum Company, E. L. Tatum and B. G. Dunbar are leasing in the southwest part of township 18, range 14. Good prices are being paid for available leases in the Mount Holly area in township 17, range 18 where Phillips Petroleum Company will drill a deep test soon on a geophysical prospect.

In Union County north of the old Lisbon field where Standard Oil Company of Louisiana has a block in township 16, range 17, Mid-Continent Petroleum Company is taking scattered leases. Standard is filling in its block around Section 5-18-18, Columbia County, just northwest of the Schuler field. The Texas Company is leasing in the vicinity of J. K. Wadley's block in Miller County in township 18, range 17, where Wadley continues to lease.

In LaFayette County in the Doddridge area, A. V. Erwin is continuing to lease in township 19, range 26.

El Dorado, Ark.—Two drilling permits were authorized last week by the Arkansas Board of Conservation as follows: Columbia County — Standard Oil Company of Louisiana, J. P. McKean 4, located 660 east and 560 north SWc NW SW 8-16-22; Union County—J. R. Lockhart, W. N. Raulston 3, located 330 north and 370 west SEc NW SE 12-17-14.

Rigging for test in Clark County, Mississippi

Jackson, Miss.—L. Ryan, Shreveport, has secured major interest in the 9000-acre block recently assembled in Clarke County, east Central Mississippi, by J. S. Butler of Quitman, Mississippi, and is rigging for C. C. Eddins 1, located 920 feet east of west line and 150 feet north of south line of 29-2-14. Spudding date is October 22.

Near Learned, Mississippi, in township 4 north, range 3 west, Turner and McCarmichael, Texas operators, are assembling a block.

In southwest Alabama near the old Jackson fault and 8 miles northwest of the town of Jackson, W. R. Osborne plans an immediate test near an old hole drilled in 1903 in which at 710 feet a showing of oil was claimed.

Union Producing Company is continuing its geophysical work on the 500,000-acre block taken under 18 months geophysical option recently in Baldwin and Mobile counties.

ARKANSAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Columbia (Village)—		
Standard, Tina Crumpler 1, 15-17-19	180	7500
Miller (Rodessa)—		
Gerhig Co. of Ark., H. C. Mitchell 3, 2-20-28	552	6207
Union (Schuler)—		
Lion O. R. Co., Marine 4, 17-18-17	1680	7645
Jones, Murphy & Hurley, Murphy Ld. Co. B-1, 13-18-18	1200	7700
Phillips, Sewell 2, 7-18-17	700	7700
Sewell 3, 7-18-17	684	7700

*Failures; †Junked; ¶Million cu. ft. gas.

New Mexico Fields

14 new starts during week include one wildcat test

Hobbs, N. M.—Operations in Lea County recorded another substantial gain through the authorization of 14 new projects, including a wildcat, during the past week. This volume of scheduled development equals the high level attained the previous week. The wells involve an average expenditure for labor, equipment and incidentals of about $40,000 each. The new work will proceed in the face of a 13-cent price cut and pipe line proration, as producing offsets and approaching lease contract expirations are responsible for each of the authorizations.

An abandoned oil-producing area, centering about 5 miles west of the Eunice field, may experience a revival of development as result of a new test showing for a small well. F. C. Wilson et al's State 1, C SW NE 7-21s-35e, flowed small heads of oil after 100-quart nitro shot at 3778-3813 feet. It is expected to make a commercial producer. First oil shows appeared at 3750 feet, with an elevation of 3679 feet. Location is 7/8-mile southwest of an abandoned pumper completed by Empire Oil & Refining Company at 3835 feet in September, 1928. The latter drilled 3 failures near its isolated well. Emperor Oil Company's State-Humble 1, C SE SW 36-20s-35e, two miles north by west of the new prospect, checked low structurally. No shows have been logged in drilling to 3950 feet. It will be carried to sulphur water in the big lime, or to 4200 feet. Location was made on geology that indicated a small structure and separated from the Empire area by a structurally low failure.

Promise of a shallow oil horizon for the Vacuum field faded when Magnolia Petroleum Company, elected to deepen State 1-M, C NE NW 34-17s-35e, to the regular lime after showing for a pumper at 3187 feet. Broken lime logged at 3985-3171 feet, with an elevation of 3939 feet, yielded 137 barrels of 36.7 gravity oil on 22-hour flowing and swabbing test, then swabbed 97 barrels and 62 barrels the next two days.

Vacuum field accounted for 4 of the new tests. Phillips Petroleum Company, one of the largest lease owners and pioneer of the east extension, has rigged up for State Mabel 1, C SW NW 35-17s-34e, and made location for State-Hale 2, C NE SW 35-17s-34e, Ohio Oil Company's State-Shugart 1, C NE SE 34-17s-34e, rigging up, is an offset to the same producer that required the above tests. Amerada Petroleum Corporation has moved in materials to drill State 5-V-A, C NW SW 22-17s-35e.

Helmerich & Payne-Continental Oil Company's State 1-G-36, C NW SW 36-17s-35e, situated on a trend between the Vacuum and Monument fields, failed to respond to 40-quart nitro shot at 4950 feet. Cleanout operations have been delayed by the loss of a bailer. This test is below the water level of both areas, but is now credited with having developed its nominal high gravity oil and gas production from lower sand section of the regular Vacuum field. It is not expected to make a commercial well.

Continental Oil Company and associates awarded 7 drilling contracts to be paid from the final quarterly appropriations. Six of the projects are required offsets that have accumulated in the Eunice and Monument areas recently. The partnership also has derrick up for drilling of Gene Howe 1-A-5, Lot 7, C SW NE 5-21s-38e, wildcat near the northwest corner of Andrews County, Texas, and 1¾ miles north of J. W. Brown et al's Parcell-Conoco 1, dormant wildcat pumper. Dry holes in the area precludes any possibility of an important strike in the Permian. Work is underway on the partnership's Britt 3-B-15, C W½ NW SW 15-20s-37e, east edge of the Monument field, and the following in the Eunice field: M. Lockhart 1-B-13, NW NW NW 13-21s-36e; M. Lockhart 4-B-31, C S½ SE SE 31-21s-36e, which is the discovery lease; and Meyer 4-B-18, C E½ SW NW 18-21s-36e. Derrick is up for the group's M. Lockhart 2-B-1, C SE NW 1-22s-36e, and also for Continental Oil Company's State 3-J-2, C SE NE 2-22s-36e. The latter two offset the same producer in the recently uncovered prolific area near the contact of the Eunice lime and the Penrose sandy-lime fields.

Texas Pacific Coal & Oil Company's State 6-A, lease 1, SW SE NW 21-23s-36e, half-mile east of the discovery oil well of the Lynn field, is flowing 100 barrels oil and 100 barrels water daily after plugging back from 3686 feet to 3668 feet. Bottom hole water was encountered at a higher level than normal for the area.

The Mattix sandy-lime area gained two new operations. Amerada Petroleum Corporation, which has been sub-leasing acreage due for development in the east portion of the county, elected to drill R. C. Johnson 1, C NW SW 27-24s-37e. Schermerhorn Oil Corporation has rigged up for Woolworth 3, NW NW SE 28-24s-37e. In the Langlie field, Culbertson & Irwin, Inc.'s G. W. Dabbs 2, NE NW NW 35-25s-37e, a new project, was drilling at 850 feet.

NEW MEXICO Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Eddy County—		
Keyes et al, State 2, c se ne 9-17s-28e	35	1734
Leonard et al, State-Texas 1, nw nw ne 36-16s-31e	75	4009
Lea County (Langlie)—		
Anderson-Prichard, Stuart 2, sw sw nw 11-25s-37e	500	3430
Lea County (Vacuum)—		
Magnolia, State 2-L, c sw sw 21-17s-35e	420	4665
Ohio, State-Bridges 1, c ne ne 20-17s-34e	202	4755
State-Warn 1, Acct. 2, c nw nw 6-18s-35e	1220	4675

*Failures; †Junked; ¶Million cu. ft. gas.

Illinois Developments

Boom drilling continues in anticipation of bad winter. Brown County test has show indicating commercial oil.

Olney, Illinois.—Fell Oil Trust Company's H. Adolf 1, Section 4-1s-2w, Cooperstown Township, 6 miles southwest of Ripley, promised the first oil pool in Brown County when saturation described as sufficient for commercial production was encountered below 600 feet. The test, in the west central part of the state, is to be shot.

Pure Oil Company announced location for H. Cazel A-1, in Section 23-4n-9e, Denver Township, an offset to the company's F. Wakefield 1, Section 26-4n-9e, Noble Township, which was brought in a week ago as the first Cypress sand well in Richland County. The pool opener is good for 400 barrels a day, with production coming from 30 feet of sand at 2583 feet. While Pure Oil Company is the major leaseholder in this area, several independents have small tracts on which drilling is expected to start soon.

In general, drilling activity throughout the Illinois basin area is proceeding at a rapid pace, with operators anxious to complete as much work as possible before winter sets in. Alternate snows and thaws in the basin area over the larger part of the winter season make ground conditions unfavorable for movement of equipment in most sections and impossible in other sections.

Unofficial but reliable estimates on the state's production are about 90,000 barrels daily, with almost 90 percent of that amount coming from new fields. All production is from relatively shallow depths, the deepest from the McClosky lime formation found in Clay, Richland and Wayne counties between 3000 and 3300 feet. Much is from shallower sands in fields farther west.

In Lawrence County, B. B. B. Oil & Gas Company's L. Haughton 2, Section 12-4n-11w, Russell Township, had 1,500,000 cubic feet of gas when drilled into the shallow Bridgeport sand, promising the best of 3 gas wells drilled in this area. It is to be deepened to the Buchanan sand. A ready market exists for the gas, a 4-inch line having been laid from the field to the transport line of Kentucky Natural Gas Company at Oaktown. The first well drilled in this area, Scott Gray 1, had about 500,000 cubic feet of gas from the shallow Bridgeport sand and 2,651,000 cubic feet from the Buchanan. The newest well is 1200 feet north of the Scott Gray 1. The second test, Herbst & Fox's Haughton 1, gauged 4,069,000 cubic feet when brought in a week ago.

Lake Centralia

In the south end of the Lake Centralia field of Marion County, Kingwood Oil Company's Devor 1, Section 17-1n-2e, was drilled to the McClosky at 2117, but was being plugged back to the Benoist after electric test showed some water in the limestone formation. Casing was being perforated at the Benoist level. Four miles north and east of production in this field, Armstrong & Day moved a rig on the Pruden farm for a wildcat test. Successful completion of a well on this location would instigate a flurry of drilling in the intervening area.

Carter Oil Company's absolute hold on the Dix field of Jefferson County was broken last week when two independent operators obtained a strip of land 15 feet wide and ¼ mile long which had formerly been used as a private road. In the midst of the Rome Township field, acreage around the strip is held by Carter Oil Company, which neglected to take a lease on the old road. Three tests are planned for the strip, held by J. E. Ingram, of Shreveport, Louisiana, and W. A. Droddy, of Richview, Illinois.

Just north of the Dix field, a test on the W. B. Myers farm was dry in the Benoist sand and was drilling at 2200 feet toward the McClosky.

A test on Section 17-2n-2w, Carlyle Township, Clinton County, which will explore the Stein and Benoist sands and the McClosky limestone, was announced last week by Petroleum Service Company, Ltd. It is on a block of 102 acres 1 mile east of Carlyle, and the Stein is expected at 1170 feet, the Benoist at about 1315 feet and the McClosky at about 1550 feet. Financially interested in the test, besides Petroleum Service Company, are A. C. Leathers, of Sandusky, Ohio; Joe Carroll and H. W. Snowden, Texas operators; F. M. Arrasmith, H. J. Eggers, Guy C. Livesay and C. C. Green, all of Centralia, Illinois; G. Jordan, petroleum valuation engineer, and Patrick J. Bushmiller, geophysicist for Petroleum Service Company, Ltd.

Near the rapidly growing Weinert pool of Wayne County, Gordon & Robinson's Acola 1, Section 31-2s-6e, was moving in equipment to drill below its former abandonment depth of 3042 feet. The revival will be closely watched in view of the big McClosky pay found in the Weinert pool at about 3300 feet.

Lupher Drilling Company will drill the first Moultrie County test on the B. Shuman farm, 3 miles south of Sullivan, in Section 18-13-6. It will be drilled to at least 2000 feet. Derrick was going up last week.

In Edwards County, Leach Bros.' A. D. Lee 1, which was the first test to find saturation in that county but was later drowned out by salt water in the McClosky, was deepening to the Devonian.

Wildcat operations abandoned during the week included W. E. Neil et al's L. Pfeffer 1, Section 20-2n-6w, Lebanon Township, St. Clair, which had salt water at 1015 feet, and Cypress' C. E. Maguire, 4½ miles southwest of Millersville, Christian County, which was dry in the Stein, Benoist and McClosky formations, and had a total depth of 1570 feet.

ILLINOIS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Cass County—		
Duval, Bowen 1	*	800
Clay County—		
Pure, Bunn 1	150	1992
Wilkins Consolidated 1	794	3031
Clinton County—		
Shell, Criley 7	118	1371
Iroquois Oil Co., Bierman 1	74	1384
Pekraus & Nixon, Bob 1	40	1382
Victory Oil Co., Reinhardt 1	35	1386
Adams O&G Co., Baker 4	25	1385
O. L. Ray, Erber Est. 1	*	1640
Fayette County—		
Whisenant et al, Lilly 3	600	1591
Magnolia, Buzzard 1	400	1473
Rhodes 1	194	1564
Max Pray, Ferguson 3	290	1540
W. M. Anugle, Ferguson 2	200	1537
Canary et al, Sefton 2	152	1567
J. P. Babcock, Rhodes 4	123	1597
Kingwood Oil Co., Yolton 5	119	1617
A. J. Hausman, Stinebring 1	100	1581
Texas Canadian, Ireland 1	75	1547
Yakey, Long 2	60	1604
Carter, Holman 1	42	1635
Oil, Inc., Blurton 1	16	1570
Lawrence County—		
Ohio, Seeds 19	40	1307
Macoupin County—		
Spence Bros. et al, Fee 1	*	1755
Marion County—		
Texas Co., Reed 1B	1200	1766
Tate 1B	700	1814
Richland County—		
Pyramid Pet. Co., Sly 3	500	3037
Pure, Morris 1	250	2964
Texas Co., Doty 1	160	3207
Wayne County—		
Pure, Towns 1	1585	3096
H. H. Weinert, Twist 2	720	3329
Pure, Schuyler-Fearn 2	700	3120
Clay 4	347	3118
Schiele 3	290	1334
Texas Co., Koontz 2	550	3339
Lyon 1	406	3347

*Failures; †Junked; ¶Million cu. ft. gas.

Eastern Fields

Two new producing spots, extensions in Kentucky

Pittsburgh. — Magnolia Petroleum Company's S. L. Green 1 indicated a new Henderson County oil pool when it tapped saturation in the Cunningham sand at 2000 feet that was described as good for 50 barrels daily. On the Spottsville dome, southwest of Spottsville, Kentucky, it is being carried about 200 feet deeper to the McClosky lime. The wildcat is being drilled by Shields Drilling Company with cable tools.

J. A. Shoemaker's E. O. Busby 1, ½-mile south of Hebbardsville, and also in Henderson County, successfully cased off water above the Jett sand and was deepening last week to the McClosky. The well indicated a new Jett sand pool a week ago when heavy saturation was encountered at 1400 feet.

Extensions in two directions were made to the rapidly growing Birk City field, opened six months ago. Major Oil Company's Brown 1 and Snowden & McSweeney's Fisher 1, the latter an offset to the Brown well, extended the field ¾-mile into Daviess County when both recovered excellent McClosky cores. They are both good for an estimated 700 barrels daily, and will be offset immediately by Major Oil Company's C. Long 1.

A ½-mile extension to the northwest along the Green River in Henderson County was indicated by Simon LeBow's James Priest, which encountered McClosky pay at 1981 feet. On a 39-acre tract, it had oil standing several hundred feet in the hole and was being deepened into the sand in an attempt to force a flow.

Other operations in the Birk City area

included: Baily & Hayes' Hagan 2, pumped 197 barrels of oil after acidization with 4000 gallons; Major Oil Company's Straney 1, pumped 250 barrels after treatment with 4000 gallons; W. E. Hupp et al's O. L. Boswell 3, swabbing 150 barrels before being completely cleaned out after shot with 60 quarts; Manion et al's Bennett 1, pumping 9 barrels an hour after treatment of the McClosky with 4000 gallons of acid; J. B. & Frank Hamilton's Birk City School 1, waiting on water with 6 5/8-inch casing cemented at 1751 feet; Compton et al's Church Lot 1, drilling plug with cable tools; Carpenter & Goldberg's Lytle 1, abandoned at 1900 feet when sulphur water intruded, and Benedum-Trees Oil Company's Calhoun 3, abandoned at 2026 feet.

Following successful revival of A. S. Shaffer et al's Ed Bennett 1, a mile west of Utica, Daviess County, which was re-opened after 7 years to have the McClosky lime treated with 1000 gallons of acid, three offsets have been staked. The old well, which is now good for 200 barrels a day after being abandoned for 7 years, had the McClosky at 1650 feet. Offsets will be drilled on the Akin farm on the west, the Clark farm on the south and the Norris farm on the east.

The experience at the Bennett test has given encouragement to other areas where tests drilled to saturation in the McClosky years ago failed to produce when shot with nitro glycerin. Cumberland Petroleum Company is drilling at 1190 feet a well on the Hayden farm in the Cane Run section of Daviess County, 100 feet west of a McClosky test drilled several years ago which a shot failed to turn into a producer.

New York-Pennsylvania.

In the New York-Pennsylvania deep sand gas fields, New York State Natural Gas Company has erected a rig for a wildcat test on the S. Hammond farm, Troupsburg Township, Steuben County, on the Empire state side. Salt water was found along with a fair gas show in the Oriskany sand at Penn-York's C. Wilson 1, Willing Township, Allegany County, New York, and the operation may be plugged at its present depth of 4910 feet.

Godfrey L. Cabot, Inc., carrying on extensive operations in Southern New York and Northern Pennsylvania gas areas, has announced removal of its offices from Olean, New York, to Wellsville, in Allegany County. A one-story brick office building is being erected. Hugh Burdette is superintendent of the offices now at Olean.

Eastern States completed operations gained in Kentucky and dropped in Ohio and West Virginia last week. The net drop was one well. Kentucky climbed from 17 to 22, the past week's lot including 12 oil wells averaging 175 barrels daily initial production, 1 gas well and 9 dry holes. Ohio declined 3 to 20, the group including 8 oil wells averaging 22 barrels daily production each, 7 gas wells and 5 dry holes. West Virginia dropped 3 from 16, last week's completions including a 10-barrel oil well, 9 gas wells and 3 dry holes. In outlying Pennsylvania areas, 1 gas well and 2 dry holes were completed, while in New York 1 gas well and 1 dry hole was recorded.

EASTERN FIELDS
Completions

OHIO

Company, Well and Location	Init. Prod. Bbls.	Depth
Ashland County—		
Ohio F. G. Co., Emery 1	¶1.00	2899
Athens County—		
Speary O&G Co., Bank of Athens 2	*	760
Coshocton County—		
Ohio G. L & C Co., Holderbaum 4	¶	938
Guernsey County—		
Jones & Jewell, Harding 1	¶.20	1340
Hancock County—		
Bert Sheldon, Moore 1	¶	1268
Knox County—		
Hulse & Kundtz, Stone 4	6	3207
Rugg et al, Veatch 1	¶.03	942
Licking County—		
Wittmer O&G Co., Porter 5	85	3097
Rutledge & Mosholder, Moran 6	50	3029
North Fork Oil Co., Williams 13	7	637
J. Williams 13	2	631
Hoover Bros. Moore 1	*	....
Medina County—		
Eaken, Brown 19	20	425
Monroe County—		
Smith Gas Co., Smith 11	*	1230
Morgan County—		
Crowley et al, Newton 2	¶.10	1555
Scioto County—		
Howell, Warner 1	*	805
Washington County—		
Frazeysburg Rex O&G Co., Whitaker 1	2	1471
Devitt et al, Fisher 24	1	852
Robinson 2	*	787
Herlon et al, Lynch 3	¶	1087

WEST VIRGINIA

Boone County—		
Burns Gas Co., Ferrell 1	*	2025
Cabel County—		
Kentucky-W. Va. Gas Co., McComas 1	¶.40	3637
Calhoun County—		
Hope Nat. Gas Co., Hardman 7816	¶.43	1577
Kansas-W. Va. O&G Co., Wilson 3	¶.10	1903
Gilmer County—		
Ellis et al, Webster & Ware 7	¶.06	1834
Kanawha County—		
United F. G. Co., Johnson 4801	¶12.00	5051
Mullins Gas Co., Odell 1	¶12.00	4930
Columbian Carbon Co., Rollins 1	¶5.12	5159
Pleasants County—		
First National Bank of St. Marys, N. H. Williamson 2	¶.20	1802
Cooper Oil Co., Smith 1	*	1200
Ritchie County—		
Burge Drilling Co., Weekley 1	*	1790
Roane County—		
American O&D Co., Karickhoff 9	10	1635
Wayne County—		
United F. G. Co., Fry 4809	¶.20	1528

KENTUCKY

Butler County—		
Barnsdall, Harper 2	25	180
J. C. Miller, Hawes 1	20	550
Interstate O&G Co., Bradley 1	*	960
Snowden & McSweeney et al, Grubb 1	*	361
Gish et al, Kirtley Hrs. 1	*	225
Daviess County—		
Carter, Hagan 2	500	1885
Major Oil Co., Brown 1	300	....
Straney 1	200	1910
L. C. Young, Davis 1	*	1260
Benedum & Trees, Calhoun 3	*	2000
Floyd County—		
Kentucky-W. Va. Gas Co., Sellards 574	¶	1026
Grayson County—		
Smith et al, Porter 3	*	416
Hancock County—		
Cooper et al, Lane 8	20	307
Henderson County—		
Imperial O&G Co., Gibson Est. 1	500	2085
Mauzey (Rash) 1	120	1613
Sun & Kentucky Nat. Gas Co., Staples 1	200	2078
Hupp et al, Boswell 3	150	1750
Albraugh et al, Gregg 1	*	175
McLean County—		
J. C. Ellis, Porter 1	50	1371
Ohio County—		
Western Pet. Corp., Elmore 41	10	731
Petroleum Co., Westerfield 1	*	710
Rex-Pyramid Oil Co., Smith 1	*	....

PENNSYLVANIA

Fayette County—		
Nollem O&G Co., Alton 1	¶.05	1500
Warren County—		
Updegraph et al, Erickson 1	*	5630
Washington County—		
Naomi O&G Co., Williams 1	*	2860

NEW YORK

Allegany County—		
Empire Prod. Co., Wilson 1	¶3.40	4919
Belmont Quadrangle Dr. Co., Billings 1	*	4922

NEW YORK
Oil Wells

Company, Well and Location	Init. Prod. Bbls.	Depth
Allegany County—		
Bradley Prod. Corp., Fee, Alma	8	1320
Sawyer, Bolivar	7	1340
Sawyer	6	1354
Sawyer	5	1360
Sawyer	8	1368
Sawyer	6	1356
Sawyer	5	1348
Sawyer, Coon farm, Genesee	3	1310
Sawyer, Lot 120, Bolivar	4	1430
May Oil Co., Hazzard, Wirt	2	1420
Shamrock Oil Co., Frost, Genesee	5	1382
Martin O'Connor Est., O'Connor, Genesee	4	1390
Ella Oil Corp., Crandall, Bolivar	3	1378
A. C. A. Oil Corp., Burdick, Wirt	4	1285
Wilson Oil Co., Wales, Genesee	3	1360
A. D. Reeland Est., S. P. Oil Co., Genesee	4	1285
Swan Oil Co., Colegrove, Genesee	2	1310
Sloan & Zook, McDivitt, Bolivar	2	1326
McDivitt, Bolivar	3	1335
Lemont Oil Co., Pierce, Wirt	4	1265
Reynolds & Runyan, Burdick, Bolivar	6	1225
D. V. McCarthy, Holcomb, Bolivar	5	1260
H. N. & W. E. Sawyer, Cowles, Bolivar	7	1282
New York Oil Co., Brown, Bolivar	5	1422
R. B. Moore, Wetherby, Bolivar	6	1432
Porge Oil Co., Anderson, Alma	7	1390
Paul Jones, et al, Shaughnessy, Willing	4	1256
H. W. Patterson, Milks, Scio	6	873
Milks	5	862
Milks	7	872
Milks	6	863
I. B. Lawrence, Allen, Alma	4	1025

NEW YORK
Gas Wells

Allegany County—		
Empire Gas & Oil Co., Wilson, Willing	¶2	4915
Van Gelder et al, O'Hara, Willing	¶6	4727
Penn-York Gas Co., Wilson, Willing	¶½	4826

Water (Pressure) Wells

Allegany County—	
Forest Oil Co., Ackerman, Bolivar	1314
Ackerman	1326
Ackerman	1320
Sage Oil Co., Bradley, Bolivar	1356
Homestead Oil Co., Homestead, Bolivar	1330
Sloan & Zook, McDivitt, Bolivar	1315
McDivitt	1322
Jacob Trinkle Est., Hill Est. Genesee	1310
Swan Oil Co., Colegrove, Genesee	1330
Colegrove	1344
Christman-Ball, Underwood, Scio	1372
Ebenezer Oil Co., Emerson, Scio	1020
Pure Penn Oil Co., Gowdy, Scio	1396
S. G. Ball & Potter, Gowdy, Scio	1384
H. W. Patterson, Milks, Scio	856
Milks	849
H. W. Patterson-McEwen et al, Milks Scio	870
Milks, Scio	861
Milks, Scio	867
H. W. Patterson, Milks, Scio	873
Milks, Scio	858
Milks, Scio	869
Milks, Scio	860
Chenunda Creek Oil Co., Graves, Willing	1070
L. H. Thornton et al, Brown-Fanton, Willing	1055

PENNSYLVANIA
Bradford District

F. J. Eisert, Loop Estate	2	....
H. E. Camp Estate No. 2, Lawton	2	....
Lincoln & Brink, Connelly	1	....
N. V. V. Franchot, Mgr. Trustee, J. Meridan et al	18	....
Wasson Bros., Klice	1	....
Forest Oil Corp., 4 wells	4	....
Niagara Oil Corp., 2 wells	2	....
Bradford Transit Co., 11 wells	11	....

Bradford: Water (Pressure) Wells

Quinlan Bros., Fee	...	....
Niagara Oil Corp.	...	....

Butler-Armstrong District

Young, McCarrier et al, Olive Beatty	*	....
Donaldson, Pipher et al, Donaldson	1	....

Middle District

Wasson & Fleming, Lot 3192	1	....
Hulin Richey et al, Hoover	1	....
H. A. & A. H. Osborne, R. S. Adams	1	....

New York-Pennsylvania: Gas Field

G. L. Cabot, Inc., Whitney-Duke	*	....
New Penn Development Corp., Federal Land Bank	*	....

*Failures; †Junked; ¶Million cu. ft. gas.

Michigan Fields

Redding Township extension wells make good flows

Mt. Pleasant, Mich.—Gulf Refining Company's Hall 1, SW SE SW 34-19n-6w, Redding Township, Clare County, two locations northeast of production, topped Monroe lime at 3914 feet, 10 feet lower than the discovery, seven locations southwest, and at 3919 feet flowed 176 barrels an hour open. Choked down against 325 pounds casing-head pressure it flowed 1847 barrels net the first 24 hours and was estimated good for 3500 barrels daily.

More important from a structure standpoint was Socony-Vacuum Oil Company's Fell 1, Section 34-19n-6w, Redding, four locations west of the Gulf well. Fell 1 topped Monroe practically flat with the discovery, indicating a northwest swing of the productive area and although netting only 136 barrels natural it acidized up to 163 barrels the first 2 hours for a rated flow of 1650 barrels.

Wildcatting, while fairly aggressive, failed to cause any major stir during the week outside of a single test in southwestern Michigan. Collin & Sopers' Simmons 1, Section 3-4n-10w, Thornapple Township, Barry County, bailed oil from 1932 feet, 10 feet in Traverse lime. It bailed dry and two hours later again bailed 2 barrels of black oil. Operators shut down for orders.

Gulf Refining Company started operations on Bateson 1, Section 2-14n-4e, Bay County, a wildcat projected for the 4000-foot Sylvania sand zone.

Gas Regulation

The Michigan Public Utilities Commission ordered new regulations effective November 1 on the production of dry natural gas in the state. The new order, first actual proration order for gas, provides for a minimum of 500,000 cubic feet a month from a well drilled on a 40-acre spacing pattern. Wells on 160-acre tracts are given a minimum of 2,000,000 cubic feet per month. Wells not capable of making 500,000 per month are exempt. Production needed by utilities over the minimums will be prorated on a ratable basis.

The order followed several months of study and several hearings in an attempt to equalize withdrawal from fields between small and large open flow wells. Owners of wells of comparatively small open flow repeately had protested that they were being throttled at the mercy of big wells.

The 500,000 cubic feet minimum was reached as an amortizing figure or in effect at the 15-cent-per-thousand standard price a guarantee of $75 per month.

Lease Sale

An average of $1.48 per acre was paid by operators for oil-gas leases on 11,302 acres of state owned land, all listed as wildcat, in the October 8 sale conducted by the Lands Division of the Conservation Department.

Top price paid was $8.75 per acre for a 160-acre lease in Middle Branch Township (19n-7w), Osceola County, five miles northwest of the Van Horn (Clare County) pool. Sun Oil Company was the bidder.

Regulations providing for a $25 drilling permit fee for each test and minimum of 200 feet location from a building without special permission was ordered this week by the Bloomindale village council. The state permit fee also is $25. The council will require special bond where locations are approved closer than 200 feet from a building.

The Conservation Department also notified operators in the Bloomindale village townsite play that all wells must be drilled into the producing zone either under pressure or keep drilling tools in the hole until after first head flows died down.

A hot mixture of gelatine and glycerine form a cement, somewhat elastic when cooled, that is highly resistant to petroleum and benzine.

MICHIGAN Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Allegan County—		
Lima Oil Co., Gates 3, se ne ne 1-3n-14w	90	1469
Gates 4, nw se ne 1-3n-14w	450	1471
Diamond Springs Synd., Rigterink 2, se se nw 1-3n-14w	225	1465
Fortney Oil Co., Wesseling 7, ne sw ne 1-3n-14w	350	1466
W. L. Harvey, Beck 1, nw nw ne 4-3n-113w	*	1715
Gordon Oil Co., Freye 1, sw ne sw 22-4n-14w	450	1476
Swanson Oil Co., Essink 2, ne sw sw 22-4n-14w	200	1503
Muskegon Dev. Co., Vanderkolk 1, ne nw ne 20-4n-13w	*	1659
Darke Bros., Hardy 1, sw ne sw 21-4n-13w	45	1591
Northcott, Shipper 3, ne se nw 21-4n-13w	70	1582
V. Leonard, Koning 1, sw ne nw 35-3n-16w	*	1695
Lewis Oil Co., Foster 1, ne sw ne 29-1n-13w	30	1333
Clare County—		
Pure, Moore 1, ne nw nw 2-18n-6w	¶½	1533
Socony-Vacuum, Van Horn 2, sw ne nw 3-18n-6w	1600	3867
Fell 1, se se se 33-19n-6w	2000	3897
Daily Crude Oil Co., Van Horn 1, se sw sw 34-19n-6w	1550	3913
Gulf, Hall 1, sw se sw 34-19n-6w	1850	3919
Gratiot County—		
Michigan Chemical, Fee 9, se sw nw 24-12n-3w	*	4543
Isabella County—		
Pure, Wille 14, sw sw nw 4-14n-6w	250	3684
Lake County—		
Joe Drury, Rice 1, sw sw sw 25-8n-12w	*	3520
Macomb County—		
New Haven, Schultz 1, se ne se 22-4n-14w	*	300
Wm. Malow, Vandenbossche 1, nw se se 14-1n-12e	*	650
Midland County—		
Sun, State D2, se se se 28-16n-1w	*	3972
Montcalm County—		
Taggart Bros., Olsen 5, c nw 16-12n-9w	¶2	1150
Ogemaw County—		
Pure, State D1, nw nw ne 5-23n-2e	*	3064
Ottawa County—		
Joe Victor, Scott 1, ne ne se 20-5n-15w	*	1340
Van Buren County—		
Daily Crude, Hall 1, se nw ne 21-2s-13w	*	1445
Fisher & McCall, Wiggins B-4, se se sw 9-1s-14w	700	1217
H. C. Nelson, Shock 1, nw sw nw 15-1s-14w	*	1340
Louis Rose, Smith 1, nw nw nw 15-1s-14w	500	1242
Lucas & Thornberry, Harpham 1, ne ne nw 16-1s-14w	1000	1209

*Failures; †Junked; ¶Million cu. ft. gas.

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California Fields

Coalinga Nose leasing indicates extensive drilling plan. Moving in geological crews on flooded Tulare Lake area.

Los Angeles.—Seaboard Oil Company is increasing its lease holdings close to the recently discovered productive overlap at Coalinga Nose and other companies are entering, with the prospect that this area will become one of the state's most active. Pacific Western Oil Company, has acquired 80 acres in N½ SW 6-19-18, one mile east of Tide Water Associated Oil Company's Fleishacker 1 wildcat. This project may develop into a key well, as it is making progress with the drill below 5700 feet and is slated to core into the first oil sand formation. It is eight miles north of Gatchell 2, discovery well at Coalinga Nose. Bandini Petroleum Corporation has leased 40 acres in NE 30-19-16. Companies are paying substantial bonuses for leases. Wilshire Oil Company, Bankline Oil Company, Holly Development Company, Italo Petroleum Corporation and Union Oil Company are recent entries into the field.

Standard Oil Company's No. 82-13C, Section 13-20-15, topped the Gatchell sand around 6785 feet and 9-inch casing has been landed to 6755 feet with the expectation that a production test will get under way early this week. Tide Water Associated Oil Company's Guardian 66 is thought to have missed the Gatchell zone and is coring in siltstone below 7100 feet.

The long awaited exploration of portions of the Tulare Lake area is slated to get under way earlier than anticipated, with the announcement that Shell Oil Company is moving geophysical crews from Bakersfield to Tulare and Hanford with the intention of making a thorough survey of the acreage it controls. Since early last spring, the bed of Tulare Lake has been filled with overflow from the Kings River, and this was expected to delay exploration there from two to three years at the most until the lake dried up. Seaboard Oil Company, nevertheless, tied up 11 sections along the south rim of the lake before the water filled the old lake bed, and but for that might have been drilling by now. Because of the depth of water, Shell Oil Company will use boats in its surveying.

Arthur N. Macrate has acquired leases in the Torrance extension and is grading location for No. 4-1 and staked site for his Kupfer 1-1. Kupfer 1 is coring shale and oil sand below 5200 feet. Richfield Oil Corporation's Spring 1, most easterly well in the field, has penetrated thin oil streaks at 4916 feet. Bandini Petroleum Company's Bandini Harbor Development 1, most northwesterly test, is coring oil sand and shale below 5200 feet, while Macson Oil Company's Lomita 1589-1 has been completed for an initial yield of 300 barrels of 29 gravity oil per day at 5226 feet. Golden Bear Oil Company and Community Oil Company are the latest operators to enter the Torrance Extension. In the old Torrance field, Lancia Oil Company's No. 1, is good for 200 barrels daily from 4776 feet and McDonald & Burns' Moore 11, is flowing 300 barrels daily at 4783 feet.

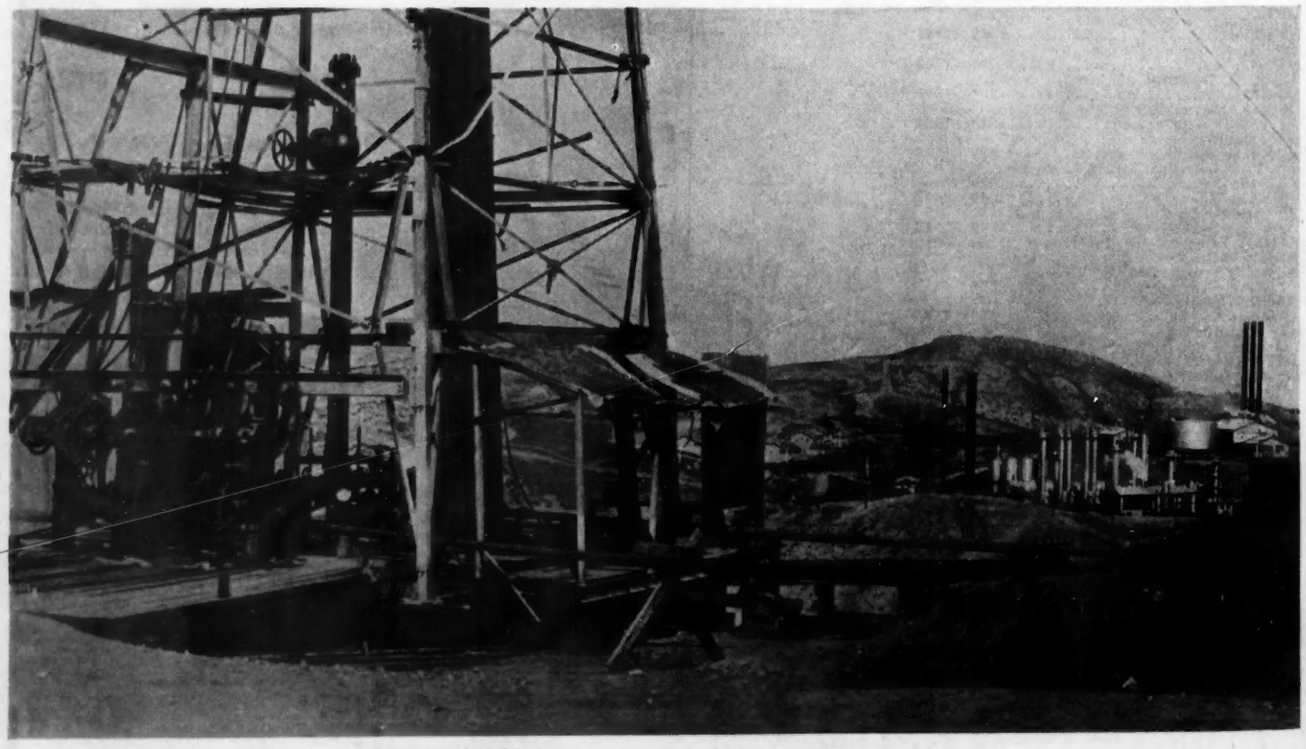
In the West Montebello field, Union Oil Company has completed Howard & Smith 3 at 6385 feet for an initial yield of 1500 barrels of 36.2 gravity oil per day. St. Helens Petroleum Company's Monterey 28, at 6290 feet was reperforated from 6287 feet to 6222 feet and came in for 200 barrels of fluid, cutting 10 percent. Monterey 29, at 5598 feet was cleaned out to 5477 feet and is flowing through tester at rate of 400 barrels daily.

Lloyd Corporation's No. 2, situated at the northeast edge of the Ventura Avenue field, is coring below 6470 feet, with oil sand stringers in evidence around 6340 feet.

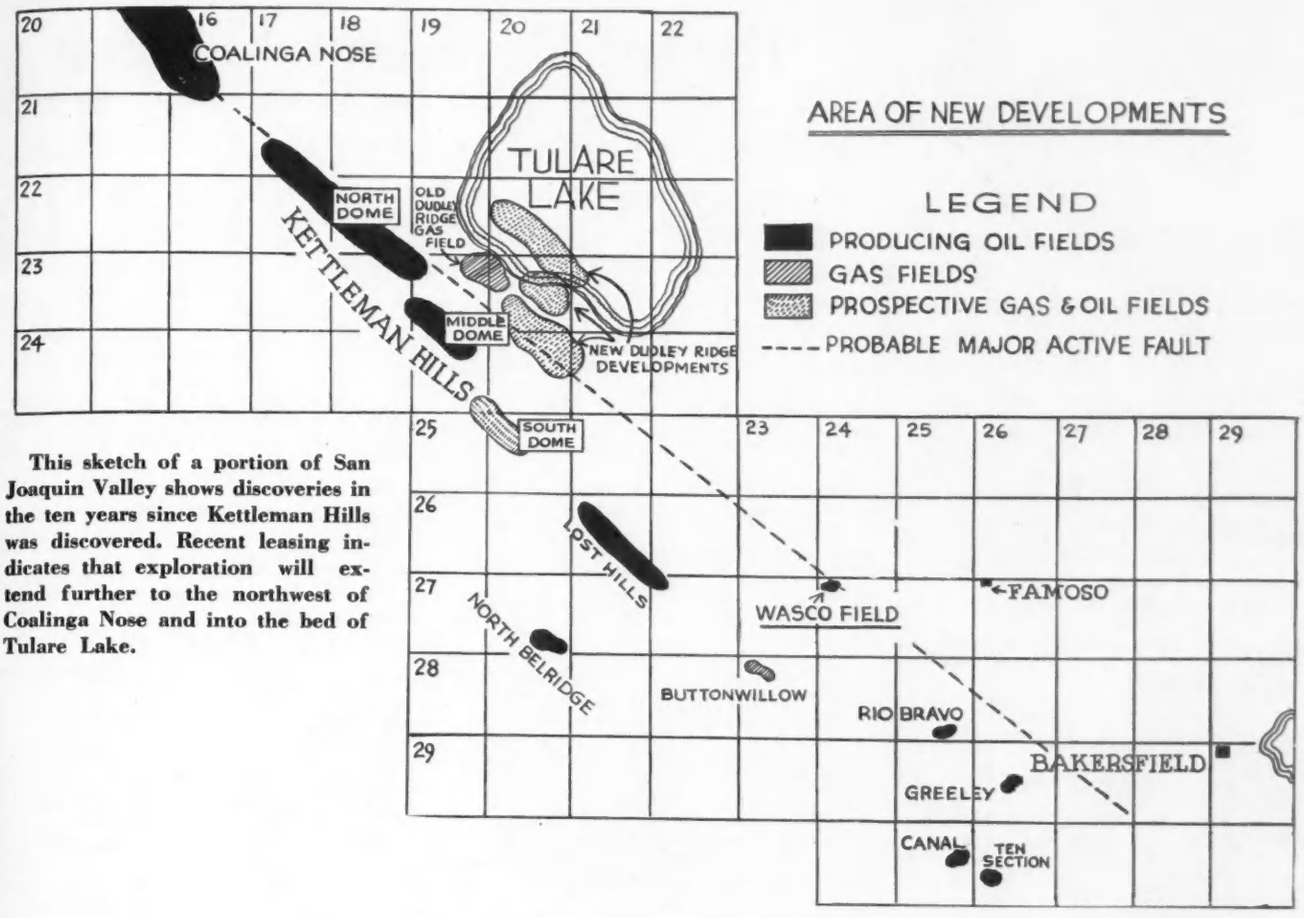
CALIFORNIA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Athens Rosecrans—		
Union, Rosecrans 25	650	7588
Barnsdall, Trust 6	*	7775
Montebello—		
Herley-Kelley, Masser 1	375	6250
Torrance Extension—		
J. L. O'Donnell, No. 43	250	5346
Silverado Oil Co., No. 1	210	5265
Texas, Oakley 1	600	5197
Torrance—		
Kovell Oil Co., No. 4	60	4970
Standard, Marble 1-14	524	4985
Marble 2-8	300	4940
Wilmington—		
General, Harbor Comm (LB) 19	1400	4060
Richfield, Pacific Dock (LB) 14	650	3005
Pacific Dock (LB) 17	340	3295
Superior, Seaside School (LB) 1	672	3920
Poso Creek—		
Ring, Rodgers-Jones 3	100	1690
Little & Gilstrap, Keating 1	40	2046
Pioneer, Buchner 1	*	1775
Canal—		
Ohio, KCL E-8	1775	8292
Midway Sunset—		
Lilly, No. 3	30	1235
Round Mountain—		
Honolulu, No. 59	165	1960
No. 74	*	1938
San Miguelito—		
Continental, Grubb 9	2650	7000
East Coalinga—		
Pure, SPL Co. 1	* 12,336	

*Failures; †Junked; ¶Million cu. ft. gas.



The discovery well at Kettleman Hills.



This sketch of a portion of San Joaquin Valley shows discoveries in the ten years since Kettleman Hills was discovered. Recent leasing indicates that exploration will extend further to the northwest of Coalinga Nose and into the bed of Tulare Lake.

Kettleman Hills Was Discovered 10 Years Ago . . . and Started Something

Discovery of Kettleman Hills North Dome 10 years ago this month has been responsible for drastic changes in drilling methods, type of equipment used to explore to extreme depths, and has had a lot to do with the recent development along the floor of the San Joaquin Valley from Bakersfield northwest to a point beyond Coalinga Nose, in Fresno County.

Producers are again eyeing the San Joaquin Valley as the source of future supplies, mainly because of the depletion of reservoirs in the Los Angeles Basin, and less directly because acreage is yet obtainable at reasonable prices.

For the past decade Kettleman Hills North Dome has been a sort of peg model or standard of measurement. It was practically the first field in the state to adopt unit development, or orderly plan whereby the competitive drilling campaign was eliminated as a means of preventing overproduction and waste. It was there that some of the state's greatest producers were brought in at the time when equipment was inadequate, although the field witnessed only two serious blow-outs. Luckily, the field has never experienced an oil well fire.

It was 10 years ago that Milham Exploration Company (now Seaboard Oil Company) placed its Elliott 1 wildcat well under control. On the morning of October 5, 1928, while the crew was pulling drill stem, this well blew out, drenched the countryside with high-gravity crude and gas for three weeks. The completion definitely proved the existence of deep zone production from the long coveted Temblor, and opened up the valley floor between Bakersfield on the southeast, to within 15 miles of the old Coalinga field to the northwest. At the time the significance of the find was not known, for in the decade following, 12 separate fields were brought in, 7 of these within a radius of 25 miles of Bakersfield, and the others not far distant, all on the floor of the valley.

Kettleman Hills North Dome was brought in a year before the Wall Street crash . . . yet, it resulted in one of the greatest drilling booms in the country, and indirectly caused an about-face in the type of equipment then in use. Wildcatters spread out to every point in the valley and brought in the fields of Wasco, Rio Bravo, Ten Section, Canal, Greeley, Mountain View, Edison, Middle Dome, Coalinga Nose, Fruitvale, Buttonwillow (gas), Semi Tropic Ridge (gas) and before another 10 years passes, it is predicted that oil will be found in the vicinity of Semi Tropic, in the bed of the old Tulare Lake, Dudley Ridge, and even northwest of Coalinga, where operators will search for a continuation of the Coalinga Nose play found in recent months.

From the time the Elliott 1 was placed under control and removed from the producing list more than a year later, this well yielded upwards of 2,750,000 barrels of 63 gravity oil. While it was producing, it also flowed 150,000,000 to 300,000,000 cubic feet of gas per day that yielded 100,000 gallons of gasoline. The well cost $250,000 to complete. It experienced one fishing job, a sidetracking delay, and was 18 months drilling for the deep Temblor zone. Wells at Kettleman Hills are now completed for $150,000 each and the drilling time has been reduced by 50 percent.

Mainly due to the lessons learned from Elliott 1, the type of drilling equipment in all oil wells drilled in California has gone through radical changes. Casing has been made stronger and flow lines have been improved. Twelve thousand-foot holes may be drilled in 4 months, and possibly less, barring the mechanical delays. Had Elliott 1 been equipped with present day flow lines and control heads, it very likely would have come in under control. The same may be said for Continental Oil Company's Elliott 12-8, a direct offset to the discovery. Both of these wells were equipped with what at the time was the "latest," yet,

when the gas sands were encountered, nothing was good enough to hold the pressure in check.

There is a similarity between the Kettleman Hills North Dome and Coalinga Nose discoveries. Both were what is called "one shot" deals. N. A. Rousselot, superintendent of Milham Exploration Company, 10 years ago, originally spotted the site for the drilling of Elliott 1. He selected the northeast corner of Section 2-22-17, Fresno County, because "it looked like it geologically." The site he picked proved productive beyond expectations. Seaboard Oil Company blocked the acreage at Coalinga Nose on the basis that an overlap play would prove of interest along the southeast end of the old Coalinga field in Fresno County. It urged four other companies to join in this proposed search and suggested that each put up a little dry-hole money. The first four companies contacted turned the deal down, but Petroleum Securities Company and Honolulu Oil Company took interests. Although three sites were selected for tests, the first well, Gatchell 2, drilled by this combine, opened up a new source of high-gravity crude at a cost of only $90,000 —split three ways.

By years, Kettleman Hills' production reveal these official figures:

	Barrels
1928	199,699
1929	1,951,786
1930	6,809,357
1931	17,544,824
1932	21,949,072
1933	21,472,041
1934	21,265,884
1935	27,568,302
1936	29,148,997
1937	29,078,290
1938 (to date)	19,977,106

Historically, few California fields compare with the early development of Kettleman Hills. Combed over for 20 years before it was recorded as a major discovery, something over 40 wells were drilled in the Kettleman Hills to various depths, all searching for the top of the structure said to exist by geologists. One geologist said: "Kettleman Hills proved to be the graveyard of the hopes of those who prospect for oil in unproven fields."

Since the discovery of oil at Kettleman Hills, suits to quiet title to various parcels have been in the courts of law. One suit involved the famous 160-acre Huffman piece that so far has yielded a high percentage of the total oil produced in the entire field. Another suit brought by Continental Oil Company was to upset the claims of prospectors and placer locaters to a 320-acre block that offset the discovery well. Continental won its case out of court, and the present owners of the Huffman lease retained ownership.

Tulsa.—Repressuring has been started for the Wilcox sand wells of the Billings pool, Noble County, where 4 concerns have majority of the deep production from 64 of the 69 wells. Phillips Petroleum Company will operate the plant and properties, which are owned by it, Continental Oil Company, Tide Water Associated Oil Company and Shell Petroleum Corporation.

Rocky Mountain Fields

Gas blowout revives interest in Upper Green Basin. Mahoney Dome deep test makes 35 barrels of oil an hour.

Casper, Wyo.—Increased leasing, geo-prospecting, and possible testing were seen in the upper Green River Basin area of southwestern Wyoming this week as Frontier Petroleum Corporation's wildcat on the Dry Piney structure had a gas blowout for an estimated 20 to 50 million cubic feet daily. The test, Government 1, SE SE SW 1-28n-114w, Sublette County, encountered the gas in a soft sand in the upper Frontier formation at 5902 feet and was out of control for 20 hours before heavier mud was pumped-in to drill ahead for lower sands in the Frontier. The Frontier section is about 2500 feet thick in the area.

The test is 80 feet west of a Midwest Refining Company test, which in 1924 drilled to 4002 feet without penetrating the Frontier formations. That test showed for 15 barrels of oil daily in a stray sand in the Hilliard shale. Frontier Petroleum Corporation holds a 10,000-acre block covering the Dry Piney structure.

Two summers ago, Ohio Oil Company, The California Company, and The Texas Company along with others carried out several seismograph surveys through the Green River area and leased extensively. A good portion of this acreage was dropped though one or two sizable blocks were held. Leasing is again reported and possible drilling of the blocks.

In the same area, Wyoming Petroleum Company's Charles Budd 1, CNE NE 10-29n-113w, a wildcat drilling on the Big Piney structure, Sublette County, is drilling below 1000 feet and reports considerable showings of gas.

Approximately 1500 acres of proved oil land were added this week to the Frannie light oil field of Park County, northern Wyoming, as Continental Oil Company's Northern Pacific 1, SE SE NW 23-58n-98w, completed for 450 barrels of oil daily on the pump from the Embar-Tensleep formation. The well is located a quarter mile west of the nearest production and moves limits out to the 3500-foot contour. Seven-inch is set at 3442 feet in the Embar formation and hole bottoms in the Tensleep at 3530 feet. Blue Ridge Oil Company has a tentative location for a test in NE NE SW 25-58n-97w.

Oil at Mahoney Dome

A new oil producing reservoir was added to Wyoming's reserve this week when Sinclair-Wyoming Oil Company's Mahoney 3, CSE NW 34-26n-88w, deep test in the Mahoney Dome field, Carbon County, central Wyoming, flowed at the rate of 35 barrels per hour from the Tensleep sand. Heretofore, the field had been a producer of gas only from the Dakota series and the Sundance. Seven-inch is set at 4292 feet on top of the sand. The well deepened from 4408 feet where earlier in the week it had swabbed 15 barrels in 8 hours, to 4486 feet. This completion is just a few feet from a test drilled in 1928 which had the Tensleep at 4295 feet and made about 70 barrels initial, but was not properly cleaned and produced because of tools dropped in hole. The company is preparing to clean-up this well, and complete it by the selective method, deepening further into the Tensleep.

Two important offset locations to the recent south extension test of Lance Creek field, Niobrara County, were announced this week. Continental Oil Company is moving in material for Deilman 2-B, NE NE NE 8-35n-65w, west offset to Minnelusa Oil Company's H. & M. 1, and J. E. (Jack) Manning has staked location for Government 1, NW SW SW 4-35n-65w, east offset. The H. & M. well, which extended the field a half mile south, made the largest Leo sand producer in Lance Creek, and brought about a revival of Lance Creek drilling activity. Northeast offset to the H. & M. well, Ohio Oil Company's Elizabeth Lamb 11-Account 2, SW SE SE 5-35n-65w, is a near completion running 7-inch to the top of the Leo sand at 5461 feet with total depth at 5476 feet.

Ohio Oil Company is recompleting Transark 1, CSL SW SW 30-57n-98w, Little Pole Cat gas field, Park County, northern Wyoming in the Frontier formation for a gas well after failing to develop production in lower formations. The company is rerunning 4¾-inch casing to 5594 feet. The well was plugged back from 6929 feet.

In the Big Medicine Bow field, Carbon County, central Wyoming, Ohio Oil Company, joint with The California Company, is recompleting William Kyle 3-A, SW NW 26-21n-79w, in the Sundance sand and is swabbing and testing in the Upper Sundance. The well drilled to 7838 feet to granite and found only water in formation below the Sundance. William Kyle 5-A, CNW SE 26-21n-79w, is drilling at 2426 feet.

ROCKY MOUNTAIN
Completions

MONTANA

Company, Well and Location	Init. Prod. Bbls.	Depth
Glacier County (Cut Bank)—		
Texas Co., Government 2, ne nw ne 17-32n-5w	160	2865
Toole County (Kevin-Sunburst) —		
Consolidated Gas Co., Haukland 1, csw nw 27-33n-2w	¶2	1510
Lewistown-Flathead Oil Co., Bashor 1, se se se 9-35n-1w	*	1830
WYOMING		
Park County (Frannie)—		
Continental, Northern Pacific 1, se se nw 23-58n-98w	450	3464
Weston County (Osage)—		
Sackett & Butcher, Fee 5, cne nw 23-46n-64w	8	1880
Carbon County—		
Ohio (Oil Springs), Baker 2-A, nwc sw sw 2-23n-79w	*	2717

*Failures; †Junked; ¶Million cu. ft. gas.

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McEVOY

OIL FIELD EQUIPMENT

on pages 1371 to 1394 of the

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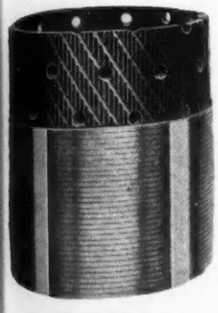


Figure 8008

Figure 8032

Figure 8035

Figure 8148

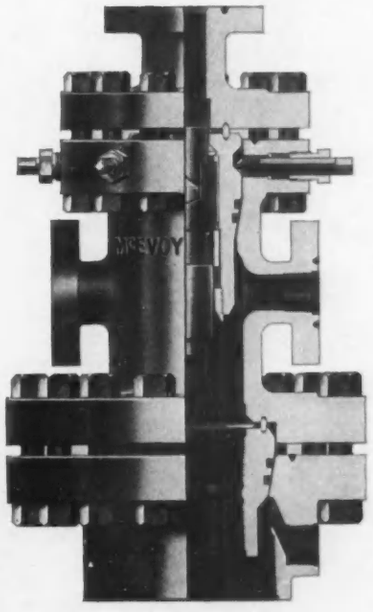


Figure 8080

Figure 8004

Figure 8031

Figure 8134

Figure 8052

Figure 8082
Type AGS

Figure 8129

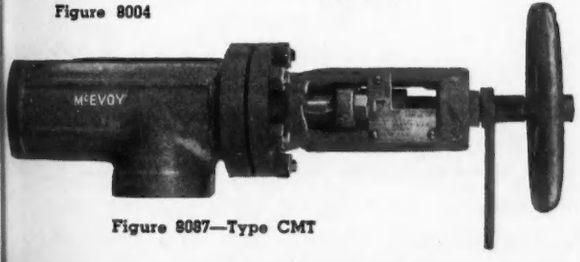


Figure 8087—Type CMT

Figure 8089—Type CPT

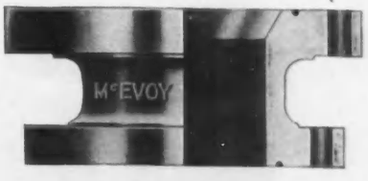


Figure 8078

IMPORTANT WILDCAT TESTS

ARKANSAS

Calhoun—Samuel S. Alexander's Smythe 1, c ne ne 7-11-14, sd 2305 ft. C. E. Murdock's Southern Kraft 1, nw nw 17-14-13, fsg 3045 ft. **Columbia**—Atlantic's Levi Garrett 1, c nw sw 13-17-20, base anhydrite 3233 ft, top James lime 3767 ft, dr 4675 ft. Petroleum Finance Co.'s Barnett 1, c nw se 14-17-20, rur. Standard of La.'s E. D. Harris 1, 15-17-19, spd. G. H. Vaughn's Levi Garrett 1, c se se 14-17-20, top James lime 3705 ft, dr 5960 ft. Tidewater & Seaboard's J. T. Beene 1, c se nw 15-18-19, elev 232 ft, top Tokio 3040 ft, dr 3478 ft. **Craighead**—Tenn-Ark Inc.'s Martin 1, 35-14n-3e, ruct, td 1754 ft. **Crittenden**—Stanley Oil Corp.'s D'Anner Hrs. 1, c 18-8n-9e, sd 3351 ft. **Little River**—Barbere et al's Mills 1, se sw nw 18-12-29, ru and sd. Clark et al's Strawn 1, se sw 20-10-32, woc 62 ft. Harford Oil Corp.'s Denning 1, ne sw 6-13-30, dr 1650 ft. D. L. Hersey et al's W. D. Waldrop 1, se nw 4-13-31, dr 1409 ft. J. G. Strahan's Dierks Lbr. Co. 1, sw se 21-12-28, sd 3355 ft. **Lonoke**—Cabot Drlg. Co.'s Cabot Townsite 1, 18-4n-9w, sd 2330 ft. J. W. Anderson's Eddington 1, c nw ne 7-4n-9w, sd 900 ft. Hudson et al's Young 1, sw nw 8-3n-7w, sd 225 ft. J. F. Russell's J. T. Gunter 1, se se 17-5-10, sd 1650 ft. **Mississippi**—Benedum & Trees' Winston Mack 1, nw sw 3-15n-12e, dr 3488 ft. **Pulaski**—Coker Oil Corp.'s Stone 1, 36-3n-11w, sd 905 ft. A. L. Kitselman's Fee 2, se sw 2-1s-13w, sd 3389 ft. **Union**—Fohs Oil Co. et al's Craig 1 (Union Sawmill fee), se se ne 5-18-14, dr 500 ft.

SOUTHERN CALIFORNIA

Los Angeles—Royal Land Co.'s No. 1, 8-4-17, co 1083 ft. Richfield's Dominguez Estates 1, 2-4-13, lcn. D. H. B. Oil Co.'s Heath 1, 34-3-11, dr 6150 ft. Mojave Pet. Co.'s Gorman 1, 5-8-18, dr 300 ft. Continental's Newhall 1, 20-4-17, grading roads. Newhall Drlg. Co.'s Needham 4, 13-3-16, rur to deepen. British American's Pico 1, 12-2-12, dr 6125 ft. Tide Water Associated's Porter 1, 27-3-16, dr 4840 ft. Texas Co.'s Anderson-Spring 1, 9-2-15, wocs 685 ft. R. T. Grady's Sepulveda 1, 23-5-14, rig. Hogan Pet. Co.'s Burkhard 1, 7-5-13, sd 2600 ft. **Orange**—New Fields Oil Co.'s No. 1, 16-5-11, rur. A. V. Oil Co.'s No. 1, 16-6-10, coring 4720 ft. **San Bernardino**—Southern Counties' Los Serranos 1, 22-2-8, dr 1950 ft. **San Diego**—Dauphin Dev. Co.'s Kelly 1, 16-12-4, dr 700 ft.

SAN JOAQUIN VALLEY

Fresno—Holly Dev. Co.'s No. 1, 12-20-15, lcn. Pet. Securities' No. 31-18F, 18-20-16, dr 5696 ft. Magnet's Fearon 2, 18-20-15, sd 4833 ft. Medford's F. C. Goetz 1, 10-20-15, to test 6763 ft. Shell's Coast Range 21, 17-19-15, dr 1780 ft. Standard's No. 82-13C, 13-20-15, wocs 6808 ft; No. 1-17F, 17-20-16, lcn. Stuart's Stuart 1, 12-21-14, dr 324 ft. Superior's Cagle 1, 6-20-16, lcn; Coalinga Fee 1, 7-20-16, dr 6208 ft. Texas Co.'s Mohawk 19, 12-20-15, bailing 4424 ft. Tide Water Associated's Fleishacker 57-1, 1-19-15, dr 5485 ft; Guardian 66, 12-20-15, dr 7010 ft. Dauphin Dev. Co.'s Ragan 1, 19-21-14, r 3470 ft. Cyrus Pierce's Shorb 1, 16-14-12, dr 1020 ft. **Kern**—Ohio's KCL F-1, 10-31-25, dr 8780 ft. California Lands' Salisbury 1, 7-29-24, wocs 5302 ft. Shell's KCL B-87-4, 4-30-25, dr 6299 ft. Gibson's Alferitz 3, 14-25-18, dr 1207 ft. G. W. Johnson's Brown-Paulette 1, 33-29-30, dr 1208 ft. G. E. Renner's R. H. L. 2, 27-30-30, dr 1792 ft. Richfield's Tupman-Western 1, 32-30-25, dr 8251 ft. Shell's KCL A-58-8, 8-27-26, rur. Texas Co.'s Camp-West Lowe 1, 7-29-27, wocs 10,122 ft. Petrol's Reserve-Petrol 33-5, 33-11-19, dr 5429 ft. Hall-Baker's Reserve 33-2, 33-11-19, bailing 4615 ft. Richfield's KCL 1, 28-11-20, dr 7473 ft. Wilshire's Tejon 34-1, 34-11-19, rig. C. C. White's Armstrong 2, 9-26-26, rig. Framac's Brown 3, 22-27-27, co 1355 ft. Julius Freid's No. 1, 34-32-24, dr 2588 ft. General's St. Helens 2, 12-28-20, lcn. Continental's KCL E-1, 17-30-26, redrilling 7385 ft, td 8574 ft. Richfield's Union Avenue 1, 6-30-28, dr 6483 ft. Continental's KCL A-3-8, 8-27-24, will perforate 13,156 ft and test, td 13,644 ft; Seaboard-Associated, KCL C-1, 26-27-24, dr 13,100 ft. Standard's Mushrush 1, 7-27-24, dr 12,280 ft; KCL 8-B-1, 17-27-24, dr 13,048 ft. **Kings**—Athalie Irvine's No. 1, 11-24-20, dr 2353 ft. **Tulare**—Caminol's A. O. G. 3, 29-24-24, dr 9640 ft.

COASTAL COUNTIES

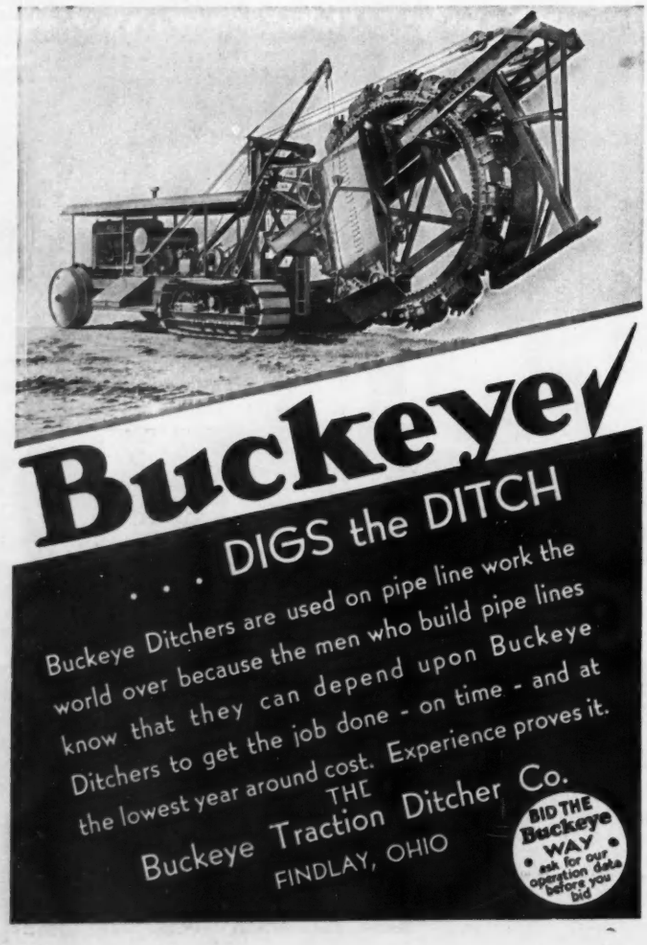
Santa Barbara — Richfield's Tinaquaic 1, 36-9-32, rig. Barnsdall's Pezzoni 1, 15-8-32, dr 3754 ft. Petrol's Magenheimer 5-11, 9-8-32, co 4714 ft. J. E. O'Donnell's Helen 1, 8-7-33, dr 4821 ft. Continental's La Laguna 2, 25-8-31, rig. General's La Laguna 1, 6-7-30, dr 1492 ft. **San Luis Obispo**—I. L. Burch's No. 3, 4-10-26, lcn. G. E. Renner's R. H. L. 1, 7-32-22, lcn. Temblor's Temblor 1, 22-31-21, dr 3325 ft. Loma Grande's Luis 1, 28-31-13, wocs 1476 ft. Hancock's Scherer-Dickes 1, 30-12-33, pumped 70 bbls daily, sd 5593 ft. Eureka's Union 1, 27-26-13, rur to deepen 100 ft. **Ventura**—High Mesa's Butcher 1, 16-4-22, dr 1729 ft. Claran Oil's Hardison 1, 22-4-20, rur 410 ft. Commander Oil Co.'s No. 7-F, 13-4-19, fsg 575 ft. Merchant's Cochrane 8, 1-4-20, dr 1235 ft. St. Louis Oil Co.'s Williamson 1, dr 620 ft. Texas Co.'s Shiell's 135, 4-3-19, dr 3656 ft. Albatross Oil Co.'s Scheiferle 1, 17-3-20, rig. Clipper Oil Co.'s Calco 1, 17-3-20, rig. Texas Co.'s Richardson 5, 13-3-21, pumped 99 bbls daily 6702 ft. Section 20's No. 1, 20-5-19, dr 2190 ft. Hardison & Temple's No. 1, 22-4-21, wocs 656 ft. J. W. Martin's Arnett 1, 15-4-21, fsg 1230 ft. Stallings, Senter & Ahlburg's Stallings 1, 24-4-21, pumping to sump 1445 ft. Ventura Drilling Co.'s Canet 1, 10-3-23, dr 890 ft.

NORTHERN CALIFORNIA

Colusa—Amerada's C. L. C. 1, 34-16-1, redrilling 7266 ft. **Glenn**—Ohio's Willard 2, 18-20-2, redrilling 1972 ft. **Humboldt**—Texas Co.'s Eureka 2, 22-3-1, redrilling 7708 ft. **Madera**—Barnhart-Morrow's Arnold 1, 22-10-17, dr 2390 ft. **Monterey**—Texas Co.'s Lewis 1, 1-19-5, dr 3621 ft. A. A. Anderson's Hillman 1, 15-24-14, co 4004 ft. L. B. Tannehill's Quinn 1, 35-20-8, fsg 5666 ft. **Sacramento**—Superior's Reclamation Board 1, 7-3-3, grading roads. **San Mateo**—Wilshire's Cowell 2, 20-6-5, dr 1100 ft. **Solano**—Richfield's Potrero Hills 1, 10-4-1, dr 4750 ft. **Stanislaus**—Orestimba Oil Co.'s Simon Newman 1, 12-7-7, dr 740 ft.

COLORADO

Elbert—Plymouth Oil Co., Brosky-Union Pacific, csw sw 19-10s-60w, dr 6040 ft. **Garfield**—Roaring Fork Oil Co.'s Patterson 1, sw ne ne 36-7s-88w, running 4¾-in csg 1767 ft. **Las Animas**—Johnson & Allison's Azar 1, se se nw 24-34s-58w, dr 100 ft. **Mesa**—Continental Oil Co., California Co., Amerada Petro-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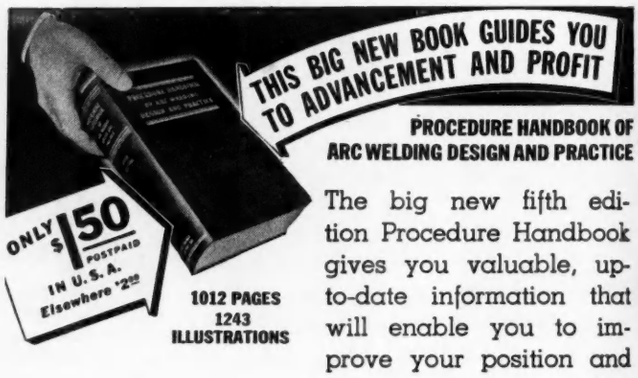
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ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*
‡—*salt water (completions).*
†—*junked and abandoned.*
¶—*million feet of gas.*
abd—*abandoned.*
bbls—*barrels.*
br—*building rig.*
bs—*basic sediment.*
csg—*casing.*
co—*cleaning out.*
dd—*drilling deeper.*
dk—*derrick.*
dr—*drilling.*
fsg—*fishing.*
ft—*feet.*
hfw—*hole full of water.*
in—*inches.*
lcn—*location.*
m—*milling.*
mim—*moving in materials.*
mit—*moving in tools.*
mot—*milling on tools.*
n, s, e, w—*north, south, east, west.*
oih—*oil in hole.*
owdd—*oil well drilling deeper.*
owpb—*old well plugging back.*
pb—*plugged back or plugging back.*
r—*reaming.*
rog—*rig on the ground.*
rur—*rigging up rotary tools.*
rust—*rigging up standard tools.*
sd—*shut down.*
sdtr—*sidetracking.*
sg—*show gas.*
si—*shut in.*
so—*show oil.*
so&g—*show oil and gas.*
spd—*spudding.*
sr—*straight reaming.*
sw—*salt water.*
td—*total depth.*
ur—*underreaming.*
wih—*water in the hole.*
wo—*workover.*
wocs—*waiting on cement to set.*
wosr—*waiting on standard rig.*

leum Corporation's David Miller 1, sw sw nw 36-8s-91w, coring 8482 ft. **Moffat**—Isenberg, Parker & Meyers' Meyers 1, nw se ne 36-4n-103w, ru. Mackinnie Oil & Drilling Co.'s Coles 1, se nw se 1-3n-92w, dr 2940 ft. **Park**—South Park Oil Co.'s Lemarr 1, ne ne se 34-11s-75w, dr 6320 ft. **Prowers**—Continental Oil Co.'s Rosabelle Ruby 1, cne nw 31-21s-44w, trying to regain circulation at 5425 ft. **Pueblo**—Eden Oil & Gas Co.,'s Horse Creek 1, sw se 29-19s-64w, running 6¼-in csg 1860 ft. **Rio Blanco**—Buford Oil Co.'s Government 1, cne ne 20-1n-91w, dr 3300 ft. **Routt**—Steamboat Springs Syndicate's Brown 1, nw ne 1-6n-86w, dr 1390 ft, sog 1310 ft.

ILLINOIS

Bond—Lindsey Bros. et al's Bufter 1, nec sw 31-4n-2w, spd. Huppard et al's Dresser 1, sw ne nw 21-6n-4w, dr 1650 ft. **Champaign**—Sidney O&G Co.'s Wendling 1, sw se ne se 10-17n-10e, ru & sd. Barber & Seiver's Lindsey 1, c nw se 20-20n-8e, dr 500 ft. **Christian**—Graham et al's Fikan 1, c ne ne se 27-11n-1w, sd 450 ft. Swords & McDougall's Warren 1, nw se se 23-11n-1e, td 1075 ft. **Clark**—Snavely's Handy 1, ne ne ne se 17-11n-12w, dr 150 ft. **Clinton**—Martin et al's Rensing 1, sw se ne 35-1n-5w, dr 1100 ft. Carlyle Development Co.'s Bott 1, ne sw sw 17-2n-2w, rur. Sappington et al's Higlemann 1, se ne nw 22-3n-3w, dr 1350 ft. White et al's Wilton 1, sw se nw 19-3n-2w, dr 125 ft. **Coles**—Wafford's Andrews 1, sec 21-11n-7e, dr 375 ft. Phillip Pet. Co.'s Ozee 1, ne se ne 27-11n-8e, dr 2080 ft. Thompson Drlg. Co.'s Degler 1, sec ne 9-12n-7e, dr 1750 ft. **Cumberland**—Nat'l Consumers' Harrison-Ward 1, ne se ne 17-9n-9e, sd 1725 ft. Stewart's Cable 1, nec 26-9n-9e, dr 1775 ft. **Edgar**—Meyers' Brinkerhoff 1, c se se 26-13n-13w, dr 1200 ft. Pearcey et al's Blair 1, nw ne nw 24-14n-14w, sg & so, td 444 ft. Mabee et al's Oakland Bank 1, nwc ne 31-14n-14w, sd 1130 ft. Lapsley's Roll 1, swc ne 17-14n-13w, sd 670 ft. **Edwards**—Leach Bros.' Lee 1, sw ne se 11-1s-10e, dr 3535 ft. **Effingham**—Anderson's Hacer 1, nw sw sw 27-8n-4e, rog. **Fayette**—Burroughs' Hosler 1, swc se 8-5n-1e, dr 1450 ft. Longoria's Brasch 1, nec sw 1-5n-2e, dr 775 ft. Hurrican Creek's Eckard 1, c nw ne 15-6n-1w, dr 1050 ft. Putman et al's Farmer 1, c se se 35-6n-1w, dr 500 ft. Brown & Lacey's Albright 1, se nw ne 19-6n-3e, dr 1200 ft. Mamouth & Murphy's Neal 1, c sw se ne 32-6n-3e, dr 1100 ft. Ketcherside & Fisher's Quigle 1, nw sw sw nw 11-7n-1e, dr 230 ft. Simmell et al's Workman Estate 1, sw swc se 26-7n-2e, rog. Ruwaldt & Johnson's Unknown 1, nw nw ne ne 28-7n-3e, dr 400 ft. Hayes, Miller et al's Thull 1, c se sw se 14-8n-1e, fsg 1000 ft. Beck & Moore's Burrus 1, c se ne ne 27-9n-2e, lcn. Garland's Miller, sec se sw 34-9n-2e, sd 280 ft. Wisenant et al's Zanders 1, c sw se nw 36-9n-3e, sg & so, td 1570 ft. **Hamilton**—Weinert's Hamilton 1, c se se nw 32-3s-7e, lcn. North Amer. Eng. Co.'s Thakton 1, se se ne sw 33-8s-7e, sd 335 ft. **Jefferson**—Buell's Glick Estate 1, ne nw nw 5-3s-4e, td 2746 ft. Benedum-Trees' Jeff O&G Co. 1, c nw ne 16-4s-2e, to dr plug, cemented back to 2755 ft. Price & Parker's Hamilton 2-A, sw sw nw 20-4s-3e, sd 3150 ft. Jennings et al's Patton 1, nw ne sw 1-1s-1e, co 1263 ft. Lewis' Harax 1, ne nw ne 8-1s-1e, dr 700 ft. **Lawrence**—Hanke et al's Carrie 1, ce se ne 21-2n-13w, rur. Foreman's Thompson 1, se sw sw nw 22-2n-12w, ru. Rockstead's Ulrich 1, se sw ne 20-3n-13w, dr 400 ft. **Macoupin**—Dillon et al's Keele 1, sec ne 32-10n-9w, dr 150 ft. **Madison**—Penn-Illinois' Poog 1, nw ne sw 12-4n-9w, td 2090 ft, hfw; Heller 1, nwc 18-4n-8w, dr 125 ft. Chlorins et al's Anderson 1, sw nw ne nw 12-4n-6w, dr 150 ft. **Marion**—Palmer's Adams 1, ne sw nw 3-1n-1e, td 1632 ft. Hansky's Yoos 1, nw ne ne 6-1n-1e, sd 1000 ft. Gardenshire's Mercer 1, sw ne se 12-1n-1e, td 2050 ft, plugging back. Superior Oil Co. of Calif.'s Luttrell 1, sw se se 4-1n-2e, testing, td 1869 ft. Duncan Bros.' Myers 1, 165 ft s of cwl ne sw nw 34-1n-2e, td 2199 ft. Bachman's Cattani 1, nw ne se 10-1n-3e, td 2133 ft. Dalton's Ira Dalton 1, nw se ne 19-1n-3e, sd 2300 ft. Oil Roy's Suggs-Meeker 1, sw nw nw 11-2s-1e, td 1452 ft. Coyer's Mulvaney 1, se ne se 6-2n-4e, rur, td 1210 ft. Pray's Rhodes 1, ne se sw 23-3n-2e, dr 1350 ft. Newman & Brook's Neilson 1, c ne sw nw 20-4n-2e, dr 1500 ft. Wigico O&G Co.'s Nichols 1-A, sw sw nw sw 22-4n-2e, td 1415 ft. **Menard**—Scroggins' Fee 1, c sw sw 24-19n-5w, co, td 1570 ft. **Montgomery**—Gould et al's McDavid 1, se sw se 4-9n-4w, dr 1250 ft. Swords & Dougal's Ohman 1, nwc 10-10w-1w, dr 750 ft. Hammer's Jones 1, c nw¼ 22-7n-3w, sd 165 ft. **Morgan**—Alexander Oil Co.'s Gray 1, e½ ne ne 25-15n-9w, sd 834 ft. **Moultrie**—Neely et al's Unknown 1, c nw ne 18-13n-6e, lcn. Continental Oil Co.'s Unknown 1, se nw nw 22-15n-6e, mim. **Piatt**—Pray's Baker 1, sw ne ne 17-18n-6e, dr 2535 ft, hfw. **Randolph**—Cain et al's Smiley 1, sec nw 31-4s-5w, sd 1008 ft. Arnes Drlg. Co.'s Nicholson 1, ne sw nw nw 12-5s-9w, sd 460 ft. Badger Oil Co.'s Schroeder 1, se nw nw 27-6s-6w, sd 713 ft. **Saline**—Carpenter et al's Sloan 1, sec sw 32-7s-6e, sd 1730 ft. Flagherty & Wayneberg's Choisser 1, ne ne nw 5-8s-7e, ur 8-in, td 1045 ft. **Shelby**—Jolly's Jenkins 1, se sec 26-10n-4e, dr 1525 ft. Frederick et al's Fluge 1, c n½ ne nw 34-10n-5e, rur. Prunty Prod. Co.'s Hickey 1, c se sw sw 34-12n-4e, rur. **St. Clair**—Badger Oil Co.'s Reichert 1, 150 ft n of cwl nwc ne 3-1s-10w, dr 175 ft. **Washington**—Harris et al's Hage 1, c s½ se se 18-1s-5w, dr 250 ft. Fell Oil Trust Co.'s Thomas 1, se nw sw sw 15-1s-2w, dr 275 ft Morris et al's Begulin 1, swc ne 12-1s-1w, dr 1625 ft. **Wayne**—Lake & Allen's Hazel 1, c ne nw 22-2n-9e, dr 1875 ft. Robinson et al's Acola 1, nw nw ne nw 31-2s-6e, otd 3042 ft, to dd. Weinert's Sprague 1, c n½ nw se 4-2s-7e, dr 1450 ft; Beecher 1, nec nw 21-2s-7e, rog. Moore's Moore 1, se ne nw 16-3s-5e, sd 2025 ft. Bruce's Holland 1, c s½ nw nw 5-3s-7e, dr 2200 ft. **Williamson**—Geo. Oil Syndicate's Scott 1, sw se sw 4-10s-2e, dr 1825 ft.

KANSAS

Barton—Continental et al's Pichner 1, se nw 23-16-11w, test, td 3416 ft. J. C. Shaffer, Inc.'s Barrett 1, sw nw 28-16-14w, owdd, ru. Carlock et al's Demel 1, ne nw 30-17-13w, fsg td 2760 ft. Long et al's Eveleigh 1, sw ne 3-18-14w, fsg, td 2630 ft. **Butler**—Fred Phillips' Hanshaw 1, ne ne se 32-27-3e, dr 2110 ft. Stewart et al's Semisch 1-A, nw se sw 34-27-7e, dr 150 ft. **Cowley**—Gralapp et al's Clark 1, nw ne 11-31-3e, sd 3175 ft. Henderson's King 1, nec 22-31-4e, mit. Barnsdall's Elliott 1, nec 5-31-5e, dr 3125 ft. Gralapp et al's Community 1, nwc 23-32-5e, dr 1675 ft. **Ellsworth**—Continental et al's Gray 1, sw se se 26-17-8w, dr 2360 ft. **Greenwood**—Dunlap's Warren 1, nw sw 4-28-10e, ur td 2110 ft. Reed's Trustee 1, nw se 17-28-11e, lcn. **Grant**—Panhandle Eastern's Joyce 1, c se 36-30-37w, lcn. **Harvey**—Derby et al's Jones 1, c el ne nw 7-22-1w, lcn. **Marion**—Johnson et al's Miltz 1, swc 34-17-4e, dr 2310 ft. **McPherson**—Western Kansas' Union 1, nw ne sw 18-17-1w, dr 1150 ft. Marylyn's Dixon 1, nw ne nw 7-19-2w, ur td 2735 ft. **Meade**—Cragin et al's Adams 1, nw nw se 22-34-30w, ru. **Ottawa**—Babcock's Copeman 1, c nl s½ s½ se 7-10-2w, rng cas, td 2427 ft. **Pottawatomie**—Turner et al's Unshide 1, c ne nw 32-8-9e, sd 1150 ft. **Reno**—Garden's Strickler 1, nwc 17-22-6w, dr 850 ft. **Rice**—Spurrier et al's Cary 1, ne nw nw 30-18-6w, lcn. Glimax et al's Malone 1, se sw nw 36-20-10w, dr 2225 ft. **Rooks**—Phillips' Tangly 1, c nw sw 25-8-18w, ru. **Rush**—Cities Service's Samuelson 1, c ne 36-11-17w, lcn. **Russell**—Price et al's Polcyn 1, swc 31-13-13w, rig. Yankey et al's Krog 1, nw se nw 7-15-13w, dr 850 ft. Western Kansas' Schneider 1, ne nw 35-15-14w, ru. **Sedgwick**—Hudson et al's Fulton 1, ne se 36-28-1e, sd 2355 ft. Crowe et al's Murphy 1, sw se 34-29-1w, dr 2285 ft. **Shawnee**—McNabb's Fritz 1, sw se nw 4-12-14e, ru. **Sumner**—Vickers et al's Blue 1, c wl nw nw 1-33-2w, dr 3440 ft. **Thomas**—Ramsey et al's Ryan 1, c ne se 27-8-3w, dr 4990 ft. **Woodson**—Nathan et al's Hassenpflug 1, nec 2-26-14e, dr 710 ft.

NORTH LOUISIANA

Bienville—Producers O&G Co.'s (Hall et al), Graves & Thomas 1, se sw se 23-15n-10w, woc 179 ft. **Caddo**—F. W. Martin & Superior Oil Corp.'s Andrew Querbes 1, 37-17n-13w, dry abn, td 6155 ft. J. Thomas Driscoll, Inc.'s Woolworth 1, 19-18n-14w, rur. R. L. Bauman's Slattery Est. 1, 35-18n-14w, blew out making gas at 2550 ft, killed, dr 3120 ft. Oils, Inc.'s A. Cazaux 1, 10-16n-13w, sd for heavier rig 3502 ft. R. E. Allison, State 1, se se 28-18n-14w, elev 175 ft, top massive anhydrite 4337 ft, coring 5545 ft. Hollywood Oil Corp.'s C. & B. Realty Co. 1, c ne ne 22-17n-14w, dr 5225 ft. Hall & Smith's Fee No. 1, se ne 5-17n-14w, lcn. Rodessa O&G Co.'s Chandler 1, 34-18n-14w, installing blowout preventer 2067 ft. J. Weil's Dreyfuss 1, 20-18n-14w, lcn. R. O. Carter et al's Marks Meyer 1, 34-18n-14w, lcn. J. T. Parks et al's

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District Representatives in Principal Cities

Grayson 1, se se 39-19n-15w, rur. **Caldwell**—Oakes et al's Kyle 1, ne sw ne 18-11n-3e, sd 470 ft. **Catahoula**—Sibley-Sabine Oil Corp.'s Peck 1, 36-10n-8e, sd 2020 ft. **Claiborne**—E. T. Oakes et al's E. C. Kilgore 2, nw se 28-21n-5w, dr 3912 ft. **De Soto**—Samuel S. Alexander's Stell A-1, ne ne 5-12n-16w, cored sandy lime so 2740-60 ft, 7-in csg 2710 ft, woc, td 2761 ft. A. L. Sutton et al's Frost Lbr. Co. 1, ne se 35-11n-15w, spd and sd. **Grant**—C. R. Bower's Harrison 1, sw ne 21-8n-5w, fsg 2930 ft. **Natchitoches**—J. E. Popkins' Peavy-Wilson Lbr. Co. 1, 36-7n-9w, sd 300 ft. **Red River**—J. M. Forgotson's J. G. Marston 1, se se 30-14n-10w, top Nacatosh 960 ft, re-cementing 7-in csg, td 1074 ft. **Sabine**—W. L. McClanahan's Frost Lbr. Co. 1, 22-9n-13w, hf fluid, arr pump after acidizing at 1616 ft, old td 5709 ft. LeGrande et al's Tatum 1, nw ne 17-8n-13w, so in chalk, acidized, testing td 2340 ft. Tropical Oil Co.'s Long-Bell 1, 5-8n-13w, arr deepen 3507 ft. Zwolle Synd.'s (Moffitt et al), Mansfield Hdw. Co. 1, ne ne 8-7n-14w, tested dry, sd, td 4325 ft. Geo. L. Pace's Logan 3, sw nw 26-10-13, acidized, testing, td 1952 ft. **Webster**—Magnolia's Pardee C-1, c nw ne 17-23n-11w, elev 203 ft, swabbed dry, so 6025 ft, top Travis Peak 6054 ft, top lower Marine 8046 ft, coring 8176 ft; Branton 1, 6-22n-9w, spd. Sibley-Sabine Oil Corp.'s McDonald 1, c nw nw 32-17n-9w, spd.

SOUTH LOUISIANA

Acadia—Atlantic's Klump 1, ne of Tepetate, 12-7s-2w, making 50 bbls distillate daily 7970 ft. **Avoyelles**—Magnolia's Bowden 1, Evergreen area, 7-2s-4e, dr shale 7409 ft. **Beauregard**—Republic's Lutcher Moore 1, Mystic area, 14-12s-7w, dr shale 3616 ft. **Calcasieu**—Sun's Lutcher Moore 2, Luntia area, 12-8s-13w, dr shale 8468 ft. **Cameron**—Federal Royalty Co.'s State 2, Calcasieu Lake, 13s-9w, lcn. Humble's Hanszen 2, Chalkley area, 9-12s-6w, reaming 11,693 ft. Union Sulphur's Miami Corp. 3, Willow Lake, 33-12s-8w, abn 9720 ft. **Iberia**—Texas Co.'s State 5, Fausse Point, 35-11s-8e, dr shale 1400 ft. **Jeff Davis**—Continental's J. Sturdivant 1, So. Roanoke, 36-10s-4w, making 84 bbls distillate daily 9880 ft. **Lafourche**—Texas Co.'s La. Terre 1, Golden Meadows, 1-20s-21e, testing 9900 ft; same operator's State Catfish Lake, Golden Meadows, 77-19s-21e, lcn. **Orleans**—W. T. Burton's State 1, Lake Ponchartrain, 10s-13e, woc 8165 ft; same operator's Faubourgde Monteluzin B-2, Lake Ponchartrain, 11s-13e, dr shale 7809 ft. **St. John The Baptiste**—Shell's Godchaux Sugars 1, La Place, 97-11s-7e, dr sandy shale 10,820 ft. **St. Landry**—Horton's Thistlewaite Lbr. Co. 1, Beggs area, 60-4s-4e, dr shale 9660 ft. **St. Martin**—Texas Co.'s St. Martin Land Co. 11, Henderson, 21-8s-7e, sd 9404 ft; same operator's State 6, Lake Mongouloui, 10-10s-9e, dr shale 9517 ft. Shell's Burdin 1, Lake Verrett, 15-14s-12e, dr shale 7892 ft. **Terrebonne**—Shell's Peters 1, se of Houma, 73-18s-18e, dr shale 10,752 ft. Texas Co.'s Continental Land & Fur Co. 1, Lake De Cade area, 29-18s-14e, dr shale 8920 ft. **Vermilion**—Stanolind's Stovall 2, Intra-Coastal City block, 88-14s-3w, dr shale 890 ft.

MICHIGAN

Allegan—American's Kage 1, 25-1n-14w, dr 600 ft. Gordon's Fokkert 1, 26-4n-15w, dr 346 ft. Hilliard's Rankin 1, 10-1n-11w, rig. Haze's Slenk 1, 13-4n-16w, dr 780 ft. Rex's Nelson 1, 36-1n-15w, rig. Shimmel's Saugatuck 1, 28-3n-15w, dr 700 ft. McClanahan's Johnson 1, 3-2n-11w, rig. **Arenac**—Bartlett's Clement 1, 6-18n-4e, dr 410 ft. **Barry**—Collin & Soper's Simmons 1, 3-4n-10w, Traverse 1870 ft, so 1938 ft, testing. **Bay**—American's Hecht 1, 10-15n-3e, dr 2600 ft. Gulf's Bateson 1, 2-14n-4e, dr 310 ft. **Calhoun**—Verona's Fruin 1, 29-1s-7w, dr 2150 ft. **Crawford**—Weber Oil Co.'s Floeter 1, nw se ne 31-25n-1w, dr 110 ft. **Clinton**—McDonald's Koeppen 1, 19-6n-3w, dr 1515 ft. **Gladwin**—Sun's Reid 1, 18-19n-2w, dr 3410 ft. Bridger's State 1, 29-19n-2e, dr 600 ft. **Gratiot**—Chartier's Duffo 1, 6-9n-3w, dr 2800 ft. Leonard Prospecting's Milling Co. 1, 10-16n-15e, dr 3215 ft. **Isabella**—Keeler's Stevens 1, 13-16n-6w, dr 3915 ft, bell shale. Gulf's Hauk 1, 13-15n-5w, rig. **Kent**—MacCallum's Story 1, 32-7n-12w, Traverse 1865-72 ft, so 1872-77 ft, td 1992 ft, acidizing. **Lapeer**—Hether's Foster 1, 26-9n-12e, Dundee 2140 ft, dr 2790 ft. **Mackinac**—Van Kuren's Hiawatha Club 2, 27-44n-9w, sd 610 ft. **Mecosta**—Gulf's Stillwell 1, ne sw ne 20-15n-9w, lcn. **Midland**—Andrew's Harris 1, 14-16n-1e, dr 110 ft. Weller's Hepinstall 1, 9-13n-2e, rig. Stork's Steger 1, 23-15n-2e, dr 1315 ft. Fortney's Sias 1, 19-14n-2e, dr 310 ft. **Missaukee**—Teater's Campbell 1, 10-22n-5w, dr 610 ft. **Ogemaw**—Molloy's Morrison 1, 29-23n-3e, dr 600 ft. Caldwell, Inc.'s State 9, 6-21n-3e, dr 145 ft. **Osceola**—Fortney's Beall 1, 25-18n-9w, dr 2900 ft. Champion's Ealy 1, 30-20n-8w, fsg 800 ft. **Otsego**—Summer's Geraldine 1, 28-30n-3w, co 860 ft. **Roscommon**—Kirkham's Miller 2, 6-22n-2w, dr 3960 ft lime and shale; St. Helen 1, 36-22n-2w, sd 3495 ft. **Bloomingdale**—Gulf Refining Co.'s Wasylenk 1, 23-4s-15w, rig.

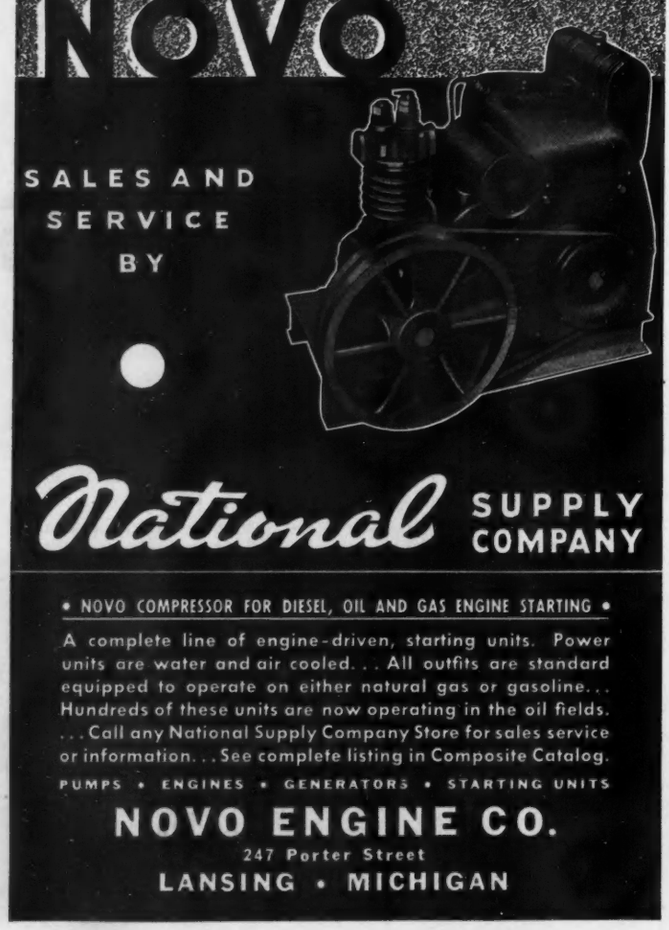
OKLAHOMA

Beckham—McWhirter's Fee 1, nw sw sw 34-8n-19w, co 2163 ft. **Caddo**—The Texas Co.'s Smith 1, c ne nw 2-5n-12w, sg, lost circulation at 2424 ft. **Cleveland**—Rucker et al's Norman 1, owpb-otd 7695 ft, rog. Big Chief Drlg. Co. and Gulf Oil Co.'s Strategier 1, nwc sw 25-9n-2w, dr 4875 ft. **Coal**—Carter et al's Mote 1, c e½ sw nw 19-2n-9e, dr 7375 ft. **Comanche**—Eldridge's Aetna Life 1, sw se sw 2-1n-10w, dr 1225 ft. Midnite O&G Co.'s Howe 1, nwc 20-2n-13w, dr 700 ft. **Grady**—Carter Oil Co. et al's Smith 1, c se sw 25-5n-8w, dr 3925 ft. **Hughes**—Phillips Pet. Co.'s Moulder 1, se sw sw 1-6n-10e, rur. Doup et al's Bond 1, nec sw 7-7n-9e, dr 2100 ft. **Jackson**—Lippert et al's Howard 1, ne sw nw 10-3n-19w, dr 1475 ft. **Kay**—Hamilton's Riddle 1, nw 3-26n-4e, sd 710 ft. Crawford et al's Boehl 1, sec nw 34-27n-2w, dr 600 ft. Atlantic O&R Co.'s Watson 1, sec nw 28-28n-1w, mirt. Tide Water Associated Oil Co.'s Hickman 1, nwc ne 19-28n-1e, dr 2000 ft. Blosser's Rololph 1, nec sw 27-29n-1w, sd 3536 ft. **Kingfisher**—Hollenback & Haley's Zerger 1, c se sw 5-18n-6w, sd 3510 ft. **Kiowa**—Crawford & Zelliff's Kimray 1, swc nw 36-5n-18w, dr 100 ft. Emerson's Handcock 1, sec ne 26-6n-15w, sd 400 ft. **Lincoln**—Ok-The Texas Co.'s Black 1, sec 31-16n-6e, sd 3882 ft. **Logan**—Continental et al's Donahoe 1, nw sw 16-18n-2w, td 650 ft, wocs. **McClain**—Villines' Pearson 1, se sw ne 13-5n-3e, dr 2025 ft. **Noble**—Hollenback et al's Mathews 1, c sw nw 9-20n-1e, so, td 4903 ft. **Oklahoma**—McClennan et al's Rodesney 1, c w½ sw ne 27-11n-2w, rog. **Pawnee**—Kelley's Hill 1, swc se 1-21n-5e, td, 145 ft, sd. **Pittsburg**—Supreme Oil Corp.'s Hickey 1, nw sw nw 4-2n-15e, sd 643 ft. Campbell's Featherstone 1, c n½ nw sw 19-3n-12e, lcn. Supreme Oil Corp.'s Stevenson 1, swc se 27-3n-14e, mirt, td 1300 ft. **Pontotoc**—Union Dev. Co.'s Abbott 1-A, sw nw ne 34-3n-6e, sd 2013 ft. **Pottawatomie**—Hall & Briscoe's Merkle 1, nwc se 32-8n-5e, set casing, td 4356 ft. Geo. L. Pace et al's Riley 1, nec se 2-9n-3e, dr 5345 ft. **Seminole**—Smith's Wolfe 1, nec sw 36-7n-5e, dr 2475 ft. **Stephens**—Mitchell et al's Westfall 1, sec 33-2n-4w, dr 1865 ft. **Washita**—Continental Oil Co.'s Proctor 1, c nw¼ 28-10n-20w, dr 7090 ft.

WEST TEXAS

(This report is confined to the north portion of the Permian basin).

Andrews—Fuhrman Pet. Corp.'s G. O. Ashton 1, c se se PSL sec 12, blk A-42, elev 3181 ft, top anhydrite 1640 ft, testing 4492 ft. Anderson-Prichard Oil Corp.'s W. F. Cowden—strip 1, 2, 3 and 4, sec 102, all cem sur pipe and will rur. S. H. Forgeron-Olson Drlg.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Co.'s Lockhart-Brown 1, c ne ne PSL sec 20, blk A-41, elev 3248 ft, salt series 1690-2720 ft, top brown lime 3995 ft, sul w 4913-81 ft, pb to 4770 ft, pumping o&w. Great Western Producers, Inc.'s Holt 1, c ne ne T&P sec 43, T-2-N, dr 1610 ft. Humble's University 1-G, c nw nw sec 18, blk 14, elev 3135 ft, top anhydrite 2120 ft, top brown lime 4430 ft, dry and abd 4942 ft. Montecito Oil Corp.-Rhodes et al's E. Cowden-Sinco 3, near nwc T&P sec 1, blk 44, T-2-N, top anhydrite 1660 ft, dr plugs, td 4150 ft. Rogers & Rogers' University 1, near c e½ sw¼ sec 40, blk 9, top anhydrite 1750 ft, top Yates 2930 ft, coring oil stained lime 4488 ft. Superior Oil Co. (Cal.'s), University 1, sec sec 35, blk 10, top anhydrite 1640 ft, cem cas 4065 ft. The Texas Co.'s University 1-H, nw ne se sec 4, blk 14, elev 3165 ft, top anhydrite 1670 ft, 7-in 4101 ft, td 4150 ft, dr plugs. J. W. Tripplehorn et al's M. A. Thornberry 1, nec PSL sec 2, blk A-42, top anhydrite 1649 ft, top salt 1790 ft, top Yates 2840 ft, cem cas 4100 ft. L. H. Wentz et al's W. F. Cowden 1, nec T&P sec 4, blk 43, T-1-N, cem surface pipe. H. C. Wheeler et al's Farmers State Bank (Carlton)-Gulf 1, c se sw PSL sec 18, blk A-36, elev 3207 ft, top anhydrite 1880 ft, dr 4280 ft. **Cochran**—Magnolia's Della Wright 1, nec labor 7, league 96, Mills C.S.L. sur, elev 3784 ft, top brown lime 3650 ft, top solid lime 3980 ft, sd in water 4943 ft. The Texas Co.'s H. T. Boyd 1, near c labor 25, league 56, Oldham C.S.L. sur, rur. **Gaines**—Atlantic Ref. Co.'s Parker Bros. 1, c se ne W. T. Ry. sec 264, blk G, elev 3348 ft, top anhydrite 2140 ft, top Yates 3255 ft, top brown lime 4370 ft, tested dry 5194 ft, coring 5215 ft. Devonian Oil Co. (was R. C. Conkling, J. M. White et al's) E. B. King 1, nec sec 6, league 305, Dawson C.S.L. sur, elev 3226 ft, top anhydrite 2510 ft, top salt 2550 ft, top Yates 3770 ft, dry and abd 5518 ft. Magnolia-Atlantic Ref. Co.'s H. & J. ranch 1, c sw sw W. T. sec 219, blk G, dr 2050 ft. **Garza**—Gulf Oil Corp.'s S. P. Swenson Cattle Co. 1, c nw H&GN sec 25, blk 2, elev 2274 ft, trace oil 6277 ft, sd lime and chert 7742 ft. **Hockley**—Richardson Oils, Inc.'s Slaughter 2, labor 58, league 39, Maverick C.S.L. sur, elev 3551 ft, top Yates 2720 ft, top brown lime 3760 ft, top solid lime 4100 ft, top pay 4933 ft, pb fr sul w 4989 to 4978 ft, used 4000 gals and 6000 gals acid, flowed 16 bbls oil per hr initial. Snowden-McSweeney Co.'s Alex Slaughter 1, nwc lse, labor 74, league 35, Zavalla C.S.L. sur, top solid lime 4210 ft, so&g, dr 5060 ft. The Texas Co.'s Mallett L&C Co. 1-B, swc labor 1, league 52, Scurry C.S.L. sur, elev 3569 ft, top anhydrite 2290 ft, top Yates 2850 ft, top lime 3780 ft, dr 4870 ft; Bob Slaughter 3, nwc labor 66, league 39, Maverick C.S.L. sur, top anhydrite 2180 ft, top salt 2270 ft, top Yates 2770 ft, dr 4865 ft. **Kent**—B. Dolman et al's C. V. O'Keefe 1, ne ne nw H&GN sec 50, blk 1, sd 300 ft. Ray Dawson et al's Haggins 1, near c nw ne H&GN sec 118, blk 1, rust. **Lynn**—J. L. Baldridge et al's Alamo Lumber Co. 1, ne sw sw HE&WT sec 151, elev 3267 ft, top anhydrite 2130 ft, top Yates 2900 ft, top San Andrews 4170 ft, sd for 5½-in pipe, td 4450 ft. **Martin**—T. G. Shaw Oil Corp.'s H. N. Wilkinson 1, ne ne se sec 35, blk A, Bauer-Cockrell sur, dr 870 ft. **Yoakum**—Honolulu Oil Corp.'s R. M. Kendrick 1-M, sw ne sw sec 825, blk D, elev 3567 ft, top Yates 3070 ft, top brown lime 4040 ft, top solid lime 4510 ft, oil pay 4983-5027 ft, increase 5053-80 ft, flowed 50 bbls oil 3 hrs, sd for acid. J. E. Mabee et al's W. N. Willard 1, nec nw¼ sec 741, blk D, rig. H. K. Riddle-S. C. Yingling's N. Barrier-Gulf 1, c ne se sec 6, blk D, elev 3564 ft, top anhydrite 2640 ft, top Yates 3440 ft, fsh dp 5501 ft. Shell's J. M. Rutts 1. sw nw nw sec 743, blk D, dk.

EAST TEXAS

Anderson—Roeser-Pendleton, Inc.'s V. W. Boyer 3 (200-ac), E. Ritter sur, Cayuga deep test, elev 317 ft, td 7676 ft, sidetracked at 5716 ft, dd to 7642 ft, lower Glen Rose, tested 260 bbls 68 gravity distillate at 90° and 6,075,000 ft wet gas initial on ½-in choke. **Cherokee**—Bunn Drlg. Co. et al's Bowlin 1, W. H. Walters sur, 2½ mi se Lone Star, elev 397 ft, Pecan chalk 3060-3374 ft, Austin chalk 3826-4005 ft, Woodbine sand 4005-06½ ft, test 3 bbls fluid per hr and gas rate 6,248,000 ft daily via ½-in choke; C. Bounds 2 (95.9-ac), W. H. Walters sur, 2½ mi se Lone Star, elev 346 ft, cut fault 3535-45 ft, Austin chalk 3787-3969 ft, top Woodbine series 3969 ft, td 4085½ ft, testing. **Freestone**—G. Shyrock et al's M. S. Clark 1 (122-ac), M. De Cantona sur, 8 mi nw Teague, elev 521 ft, sd 4000 ft. **Gregg**—Humble & Gulf's P. Horton-Dickson 1, H. G. Hudson sur, 3 mi e of East Texas field, elev 275 ft, Pecan chalk 2261-2752 ft, Austin chalk 3308-33 ft, top Georgetown lime 3333-4107 ft, top anhydrite stringer 5596 ft, massive anhydrite 6180-6445 ft, Pettit pay 7265-7305 ft, tested little distillate with 8,970,000 ft gas daily rate on 20/64-in choke, using 5000 gals acid. **Henderson**—D. T. Davis et al's J. P. Tarkington 1 (39-ac), W. K. Newell sur, elev 298 ft, top Pecan chalk 1620 ft, dr 2000 ft. E. T. DeArman et al's Tarkington 1, W. K. Newell sur, elev 320 ft, top Woodbine 3043-56 ft, no oil, showing little gas. Humble-Tide Water-Seaboard's S. S. McGee 1 (342-ac), R. Acosta sur, Opelika Trinity test, rur. Peyton Bros. et al's W. W. Carter-Tarkington 2, W. K. Newell sur, elev

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SALE OF OIL AND GAS LEASES—Department of the Interior, General Land Office, Washington, D. C. Notice is given that the following described lands and deposits of oil and gas therein contained are offered to the qualified bidder of the highest bonus per acre for leasing pursuant to section 17 of the leasing act of February 25, 1920 (41 Stat. 437), as amended by the act of August 21, 1935 (49 Stat. 674), at the royalty rate scale in the lease form shown in Circular 1386: Unit No. 1, the principal island, East Timbalier Island, known locally as Bird Island, located in fractional Secs. 34, 35, and 36, T. 23 S., R. 21 E., Secs. 2 and 3, T. 24 S., R. 21 E., and Sec. 31, T. 23 S., R. 22 E., Louisiana Meridian, situated on the Gulf Coast of La Fourche Parish, State of Louisiana, lying above the elevation of mean high tide, containing 295.77 acres, more or less. Unit No. 2, two islands, adjoining Unit No. 1 in a northeasterly direction between said principal island and Raccoon Pass, Island No. 1 located in fractional Sec. 31, and Island No. 2 located in fractional Sec. 32, both in T. 23 S., R. 22 E., Louisiana Meridian, situated on the Gulf Coast of La Fourche Parish, State of Louisiana, lying above the elevation of mean high tide, containing 11.69 and 69.29 acres, respectively, more or less. Sealed bids will be received in the office of the Secretary of the Interior up to 12:00 o'clock (noon), October 31, 1938. Bids must be submitted on each unit separately but both units, if awarded to the same bidder, may be included in a single lease. Each bidder must submit a certified or cashier's check or draft for 1/5 of the amount bid, payable to the order of the Secretary of the Interior, and furnish a showing of qualifications as required by section 7 of Circular 1386. The remaining 4/5, together with the annual rental at the rate of $1 per acre, must be paid by the successful bidder prior to the issuance of lease, and the deposits of other bidders will be returned. The envelopes should be marked plainly "Bid for Unit No.———(1 or 2), East Timbalier Area. Not to be opened before noon, October 31, 1938." The bidders are warned against violations of the provisions of Sec. 59 of the United States Criminal Code, approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids in the discretion of the Secretary of the Interior. Protests by the State of Louisiana and others claiming under the State against the granting of Government leases for the group of islands on the ground that they are the property of the State were overruled by the Secretary of the Interior in a decision rendered July 29, 1938 (A. 21589), after an oral hearing at which the protestants were represented. The Secretary held that the United States has asserted ownership of and jurisdiction over East Timbalier Island for more than 100 years and that the group of islands are public lands of the United States. Commissioner, General Land Office.

326 ft, rig. The Texas Co.'s J. P. Tarkington 1 (50-ac), W. K. Newell sur, elev 295 ft, top Woodbine 2970 ft, sand 3016-25½ ft, pb to re-perforate. **Houston**—Humble's M. B. Hill 1 (160-ac), J. L. Reviere sur A-49, Navarro Crossing, Pecan chalk 4220-4380 ft, Austin chalk 5240-5557 ft, top Woodbine 5741 ft, top oil sand 5874 ft, w.s. 5891-96 ft, tested 1⅛ to 3 bbls oil per hr via perforations 5880-82 ft, with lots gas, plugging off gas; H. Dailey 1 (68-ac), J. G. Thompson sur, lcn. J. G. Mayo et al's A. Warrock 1 (106-ac), J. Sheridan sur, 1½ mi e by s Percilla, top Pecan chalk 4700 ft, top Austin chalk 5545-5835 ft, coring 5845 ft. **Kaufman**—Sam Knoerr et al's J. P. Hunter 1 (17-ac), P. Walker sur, 5 mi s Terrell, dk. W. S. McGee et al's Pritchett 1 (15-ac), J. Hendricks sur, 7 mi w Mabank, Austin chalk 2092-2470 ft, top Woodbine 2294 ft, sd 3104 ft. J. F. McLaughlin et al's Wood-Nash 1, J. C. Cortez sur, ¾ mi se Scurry, dk. Tyler & Smith's Phoenix Realty Co. 2, A. Hicks sur, 4 mi nw Mabank, elev 308 ft, Pecan chalk 1740-2218 ft, Austin chalk 2360-2940 ft, top Woodbine 3398 ft, td 3527 ft, dry and abd. **Lamar**—Dahl Bros. & Barr's Lewis-McCuiston 2 (10-ac), R. Russell sur, 1 mi ne Paris, elev 523 ft, sp and sd. **Leon**—Lone Star Gasoline Co.'s Steve Pate 1, D. J. Haskins sur, 8 mi se Buffalo, Pecan chalk 3952-4181 ft, Austin chalk 4988-5277 ft, top Woodbine series 5609 ft, broken gas pay 5631-76 ft, w.s. 5748-82 ft, testing gas. T. J. Tucker et al's Sam Vane 1 (60-ac), Jas. Webb sur, 4½ mi se Keechi, Pecan chalk 3961-4160 ft, Austin chalk 5000-5290 ft, top Woodbine series 5497 ft, oil or gas pay 5595-5609½ ft, sd to test. Wynne Drl. Co.'s H. L. Brown-Sinclair 1 (43½-ac), Joseph Brown sur, ¾ mi nw Keechi, elev 317 ft, Pecan chalk 3678-3902 ft, Austin chalk 5090-5522 ft, top Woodbine 5940 ft, td 6092 ft, dry and abd. **Rains**—McKinley & Hastings' McTaggert 1 (21-ac), B. Miller sur, 1 mi w Emory, lcn. **Red River**—Bentley-Sheppard & Stevens' Southern Pine Lumber Co. 1, Geo. S. Parks sur, 17 mi n Clarksville, sd 71 ft. Daniels et al's J. J. Gaston 1 (657½-ac), J. Guest sur, 2 mi s Detroit, elev 468 ft, sd 1110 ft. Watters et al's J. Phamplin 1, Wm. Moore sur, 3 mi se Kanawha, elev 470 ft, Pecan chalk 78-85 ft, top Red Beds 450 ft, sd 780 ft. C. E. Whitehead et al's R. H. Ringwald 1 (56-ac), A. Moore sur, 1 mi nw Manchester, sd 630 ft. Texas Trading Co.'s Southern Pine 2, D. D. Bruton sur, elev 407 ft, top Georgetown 693 ft, base massive anhydrite 1823 ft, td 2155 ft, co to re-test. **Rusk**—Drake Dr. Co.-T. L. Johnson's R. L. Needham 1, (136-ac), Jessie Chambers sur, 3 mi sw Lanesville, elev 319 ft, lcn. **Smith**—Combest, Wadsworth & Cox's D. Kendall 1, John Williams sur, 1¼ mi se Jamestown, elev 406 ft, dry and abd 3226 ft. J. H. Thomason et al's J. W. Bartlett 1 (112.84-ac), R. G. Stewart sur, ½ mi se Jamestown, dr 1010 ft. **Van Zandt**—W. S. King et al's Edna Watson 1, M.G. Whitaker sur, 5 mi s Grand Saline, elev 489 ft, sd 2600 ft. F. A. Richardson et al's B. C. Dodd 1 (180-ac), T. W. Hutchinson sur, 2 mi s Grand Saline, elev 427 ft, td 4278 ft, pb to 4050 ft and sd.

EAST TEXAS BORDER COUNTIES

Cass—Bateman Drlg. Co.'s Jaynes 1, A. Douthette sur, sd 6505 ft (contract depth). **Harrison**—R. S. Barnwell's Mrs. Luther Smith 1, A. D. Hope sur, woc surf csg. **Marion**—Ark. Fuel Oil Co.'s Hussey 1, Chas. Lockhart sur, cored Gloyd with so, 6033-51 ft, ran formation tester, showed some oil and sw, arr core, td 6051 ft. Vestal et al's Moseley 1, D. Lane sur, sd 2768 ft. **Panola**—E. P. Pewitt et al's Rushing 1 (751-ac), Mannan Smith sur, lcn. Texas Co.'s Claude Adams 1, Thos. Cox sur, top lower Marine 7792 ft, top Permian salt 11,067 ft, pb to 9100 ft, cemtd 6⅝ in csg, perf and testing in lower Marine, old td 11,303 ft. **Sabine**—Hugo Allen et al's Brooks 1, Isaac Lowe sur, sdtr, td 5644 ft. **Shelby**—Grady H. Vaughn's Pickering Lbr. Co. 1, Brooks sur, rur. Redditt et al's Pickering Lbr. Co. 3, Snyder sur, 10-in csg 1189 ft, dr 1600 ft.

SOUTH TEXAS

CORPUS CHRISTI DISTRICT

Aransas—Housh, Schofield & Thompson et al's Kent-Crane 1, Hollis sur, dr 7140 ft. **Calhoun**—Hiawatha O&G Co.'s John Roemer Est. 2, Ogsberry sur, dr 8417 ft. **Hidalgo**—R. E. Harding et al's E. M. Card 1, Hidalgo Canal Co. subd, coring 7015 ft. Phillips' Rafael Flores 1, Por 39, dr 8784 ft. Wheelock & Collins and Magnolia's Temple 1, Llano Grande grant, dr 7465 ft. **Jackson**—Chapman Minerals Corp.'s Bennett Ranch 1, Garcia sur, dk. Texas Co.'s Weed 1, Newell sur, dr 6500 ft. **Jim Wells**—Humble's Belitz 1, Scott Ranch dr 5702 ft. Magnolia's De Garcia 1, La Anima Sola grant, dr 8098 ft; Moreno 1, King Ranch, dr 1892 ft, Presnall & Tsesmelis' Hoffman 1, Los Presenas grant, dr 4420 ft. Transwestern Oil Co.'s Dunlap 1, Seeligson Ranch, dr 5961 ft. **Kleberg**—Pure et al's State 1, 10 mi s Flour Bluff, dr 8437 ft. **Nueces County**—Phillips' Mastin 1, 5 mi sw Clarkwood, resume dr 5375 ft. Texas Co.'s Little et al 1, Wm. Little sur 59, dr 7785 ft. Union Prod. Co.'s Brown 1, Fuentes sur, td 11,317 ft, still attempting to wash to bottom. **Refugio**—Austin Corp. and Heard's Hunsdon 1, Esteban Lopez sur, dr 4069 ft. Darby Pet. Co.'s Rooke 1, Cobian sur, dr 2099 ft. Geophysical Service and Coronado's Rooke 3, Alderete grant, td 5920 ft, perf 5902-05½ ft, complete, no gauge; Spaulding 1, Alderete grant, td 5920, perf 5902-05½ ft, cleaning into pits; Yarrow 1, skid on. J. J. Coty et al's Peck 1, Lopez sur, td 6500 ft, cleaning out. National Pet. Corp.'s Missouri Pacific 1-A, Ximinez sur, td 2168 ft, pumping water into sand. Rutherford Oil Co.'s H. A. Schirmer 1, Alderete grant, cored sw sand 5924-30 ft, dr 6037 ft. **Victoria**—Grote's Carlock 1, McCampbell Ranch subd, dr 5500 ft. Illinois Pet. Co. and Dunn's Wilson 1, Morris sur, td 5913 ft, rec fish, prep re-dr. **Victoria**—Wellington Oil Co.'s Boothe 1, sec 10, ru.

MIRANDO-JACKSON DISTRICT

Bee—Herbert Aid's Hall 2, Kerr sur, coring 3500 ft. Chapman Minerals' Ablinger 1, Ryan sur, prep sp. Mayo, Bunn and Chapman Minerals' Sparkman 1, Walker sur, dr 1050 ft. **Duval**—Magnolia's Duval County Ranch 1, sec 48, dr 1443 ft. Fred Schwab and Trinity Dev. Co.'s Welder Heirs 1, Tinsley & Sublet sur 103, pits dug. Smith & Story and Gier's Peters 1, sur 175, cored sand 2586-91 ft, running dst. Texas Inland O&G Co.'s Adami 1, A. & B. sur 47, wor. Thompson's Parr 1, Julia Rogers sur 118, dr 3150 ft. **Goliad**—Sun's Shaper 1, Payne sur, coring 7774 ft. Steinberger Pet. Co.'s Alberecht 1, Hancock sur, dr 3525 ft. **Jim Hogg**—Humble's Bass 3, San Rafael grant, prep spud. **La Salle**—Fisher Hall & Johnson's Pugh 1, Garrett sur 93, td 780 ft, ru heavier rig. Lake Tobian Oil Co. et al's O'Connor 1, O'Connor Ranch, dr 365 ft. **Lavaca**—McCord et al's Russek et al 1, Reynolds sur, spd. Midway O&R Co.'s Graff 2, Jack sur, sd 3626 ft. Ragsdall's Vanek 1, Woods sur, dr 850 ft. **Live Oak**—Adair et al's Schultz Livestock Co. 1, Pearce sur 134, coring 2800 ft. Roy E. Gaines et al's Great Southern 2, Buchanan sur, abd 2213 ft. Holland Oil Co.'s Geo. West 2, Ragland sur, dr 4100 ft. Schwab's Terrell 1, Henry sur, dr 452 ft. **McMullen**—Barbara Oil Co.'s Edrington 1, sur 79, dr 900 ft. Cosner & Smith's Nueces Land & Livestock 1, sec 177, dr plugs, 5½-inch 1156 ft, td 1161 ft. Mid-Western Pet. Corp.'s Byrne Est. C-2, Pittuck sur, dr below sur csg. Shumway & Burns' Shiner Ranch 2, Grist sur No. 4, sp. Taylor Refg. Co.'s Nueces Land & Livestock 1, sec 115, lcn. **Starr**—Hall & Schmidt's Margo 1, porc 70, coring 437 ft. Sun's Olivares 1, sec 239, reamed 4611 ft, ran second dst, rec 200 ft oil and

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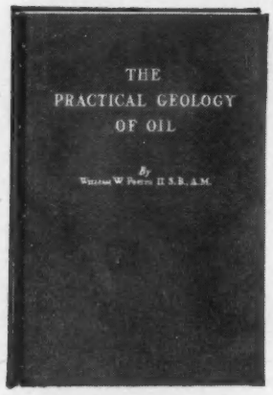

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SAN ANTONIO DISTRICT

Atascosa—Stanley's Schumann 1, Stephens Ranch subd, coring 1620 ft. **Bastrop**—Franklin's Thaxton & Yarrington 2, Bangs sur, reaming to set csg 2041 ft. Tarver's L. S. Rivers 1, sur 25, dr 1980 ft. Teas, Ashley & Hinton's Grizzard 1, Graham League, to set casing 7145 ft. **Bexar**—Blackburn's Miller 1, sur 324, sd 350 ft. **Caldwell**—Dye, Tr.'s Voight 1, Watkins sur, prep resume 1998 ft. Nytex Group Syndicate's Bridges 1, A. Floyd sur, dr 1715 ft. Weigand Bros.' O'Daniel 1, Hunter sur, dr 2040 ft. **Frio**—Humble's Schley 1, Travalder sur, td 5309 ft, ru pump, pb td 4800 ft, 7 in csg 4696 ft. **Guadalupe**—Hamill & Hamill's Zuehl 2, Duran sur, ru. Hueners' Bauer 1, Brown sur, dr 415 ft. King's Rosenbrock 1, Duran sur, dr 1625 ft. Marts & Beavan's Glenwinkle 1, Wakefield & Stewart sur, dr 2415 ft. **Kendall**—Dewey's Seidensticker 1, Cherino sur 18, dr 180 ft. Millican & Norman's Werner 1, sur 781, td 1002 ft, pumping 12 bbls oil and undetermined amt. wtr. **Lee**—Pederwon's Brown et al 1, Hudson sur, dr 5480 ft, so 5165-85 ft. **Maverick**—Humble & Wellington's Indio Cattle 1, coring 2229 ft, so 2089-99 ft. **Medina**—Murrell's Fee 5, Degant sur, ru. Victor Ziegler's Paul Haby 1, sur No. 1, ru. **Real**—Blakely Smith's Love 1, HE&WT sur, sp. **Williamson**—Anderson's Teichelman et al 1, Jett sur, sidetracking 2471 ft.

TEXAS GULF COAST

Brazoria—General Crude's Campbell 1, se flank of West Columbia, J. H. Bell sur, dr shale 3509 ft. Sterling's Kramer 1, flank test at Stratton Ridge, T. W. Grayson sur, sd 4325 ft. Humble's Masterson 1, Anchor area, Geo. Robinson sur, mim. Normandie's Ramsey 1, Iowa Colony, H. T. & B., dr shale 5101 ft. **Chambers**—Salt Dome's Ogden 1, s of Anahuac, E. Douthit sur, testing 7525 ft. **Galveston**—Midwest Royalty Corp.'s L. Lobit 1, League City area, Perry & Austin sur, running csg 9197 ft. **Harris**—Continental's Sweeney Estate 1, Ogburn sur, W. C. R. R. sur, dr shale 6800 ft. **Jefferson**—Humble's McFaddin-State B-8, McFaddin Beach prospect, in Gulf of Mexico, mim. **Matagorda**—Maja Oil Co.'s Ribbins 1, e of Palacios, A. Sheppard sur, lcn. **Montgomery**—Deep South Pet. Co.'s Foster Lbr. Co. 1, ne of New Caney, Pryor Bryan sur, dr shale 6660 ft. Frazier & Bunte's Chase National Bank 1, sw of Conroe, D. Garrett sur, dr shale 7760 ft. Mills Bennett's Foster 1, sw of Conroe, A. Hodge sur, dr shale 7070 ft. **Orange**—Sun's Lutcher Moore 1, n of Orange, B. Johnston sur, dr below 7300 ft. **Wharton**—Humble's Hancock 1, e of Louise, L. L. Miller sur, dr shale 3550 ft.

NEBRASKA

McPherson — Nebraska Oil Corporation's McConnell 1, se se ne 25-17n-31w, dr 2423 ft.

UTAH

Grand—Cane Creek Oil Co.'s Government 1, nw sw 31-26s-21e, running 8¼-in csg to 1810 ft. Columbia Crude Corp.'s Government 1, ne sw 12-25s-20e, sd 4200 ft for engine repairs.

WYOMING

Big Horn—John H. Thomas' Government 1, sw sw se 3-54n-94w, dr 675 ft. A. L. Rankin's Karjala-Rankin 1, csw nw 10-54n-94w, acidizing 55-75 ft after pb from 580 ft. Val M. Kirk's Frisby 1, ne sw ne 11-49n-94w, dr 321 ft. **Carbon**—Cunningham Oil Co.'s Wolfe-Union Pacific 1, se nw sw 7-23n-78w, Flattop structure, p&a drilled to granite 835 ft. **Niobrara**—Ohio Oil Co.'s Jones-Government 1, swc ne se 30-35n-62w, spd. W. A. Maupin's Berggren 1, nw 23-35n-65w, dr 1700 ft. **Sublette**—Frontier Petroleum Corp.'s Government 1, se se nw 1-28n-114w, Dry Piney, 20 to 50 million cu. ft gas daily blow out at 5902 ft upper Frontier, dr 5973 ft.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933.

Of The OIL WEEKLY, published weekly at Houston, Texas, for October 1, 1938.
State of Texas, County of Harris, ss:

Before me, a Notary Public in and for the State and County aforesaid, personally appeared A. L. Burns, who having been duly sworn according to law, deposes and says that he is the Business Manager of the Oil Weekly and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher: R. L. Dudley, 3381 Chevy Chase, Houston, Texas.

Editorial Director: S. W. Robinson, 5002 Scotland, Houston, Texas.

Editor: Warren L. Baker, 2142 Branard St., Houston, Texas.

Managing Editor: J. Kent Ridley, 1018 Isabella, Houston, Texas.

Business Manager: A. L. Burns, 1751 Marshall, Houston, Texas.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

The Gulf Publishing Company, Houston, Texas; James Anderson, Houston, Texas; A. L. Burns, Houston, Texas; J. F. Carter, Jr., Tulsa, Okla.; Dr. N. L. Dudley, Goose Creek, Texas; R. L. Dudley, Houston, Texas; W. S. Farish, Houston, Texas; Wm. V. Gross, Houston, Texas; Howard R. Hughes, Houston, Texas; Mrs. Anita S. Lane, Houston, Texas; Chas. H. Lane, Houston, Texas; Wallace E. Pratt, Houston, Texas; J. Kent Ridley, Houston, Texas; Kem B. Robertson, Houston, Texas; S. W. Robinson, Houston, Texas; Mrs. Maude G. Sterling, Houston, Texas; R. P. Swinsky, New York, N. Y.; O. R. Waller, Chicago, Ill.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state).
None.

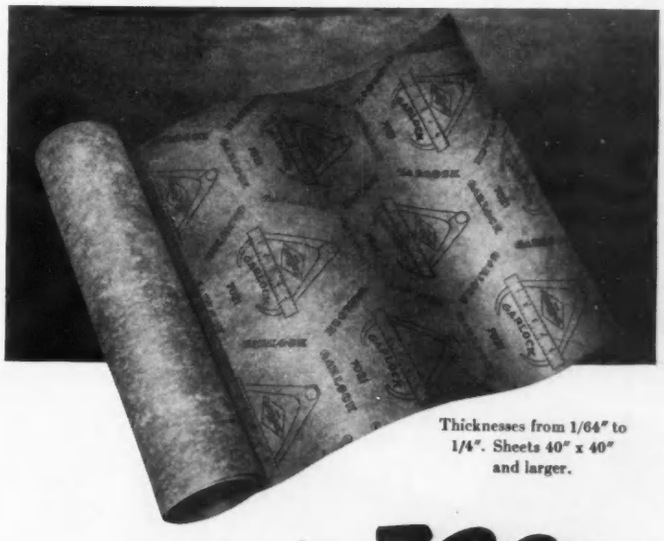
4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

A. L. BURNS, Business Manager.

Sworn to and subscribed before me this 10th day of September, 1938.

(Seal) J. KENT RIDLEY.

(My commission expires June 1, 1939.)



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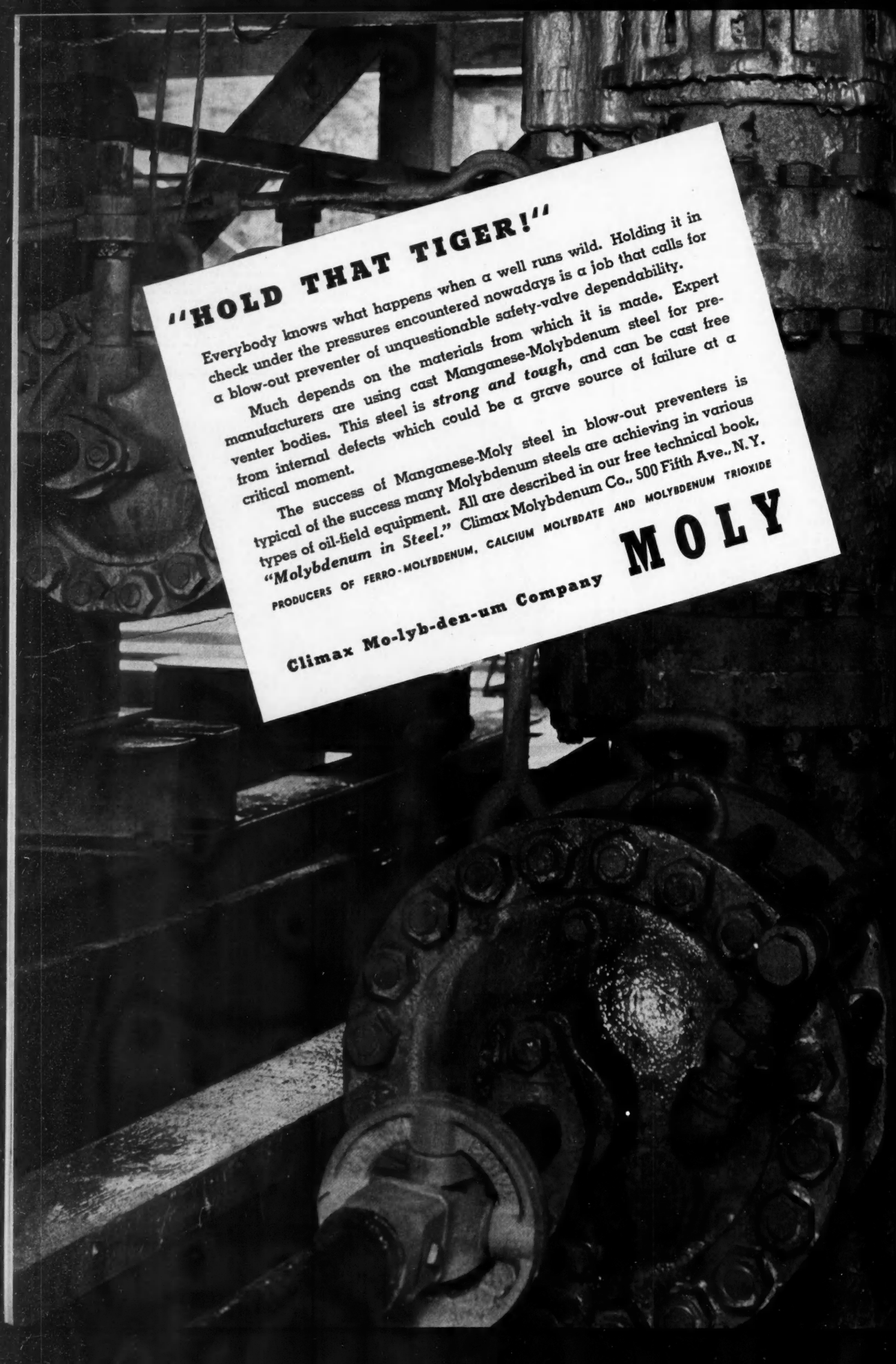

"HOLD THAT TIGER!"

Everybody knows what happens when a well runs wild. Holding it in check under the pressures encountered nowadays is a job that calls for a blow-out preventer of unquestionable safety-valve dependability.

Much depends on the materials from which it is made. Expert manufacturers are using cast Manganese-Molybdenum steel for preventer bodies. This steel is ***strong and tough***, and can be cast free from internal defects which could be a grave source of failure at a critical moment.

The success of Manganese-Moly steel in blow-out preventers is typical of the success many Molybdenum steels are achieving in various types of oil-field equipment. All are described in our free technical book, "***Molybdenum in Steel.***" Climax Molybdenum Co., 500 Fifth Ave., N.Y.

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NEW PRODUCTS FOR THE FIELD
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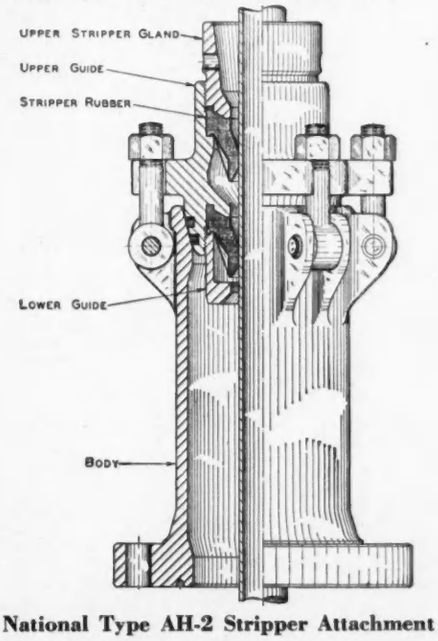
STRIPPER ATTACHMENT
The National Supply Company

The National Supply Company, Toledo, Ohio, announces type AH-2 stripper attachment by means of which collared tubing can be run in the well under pressure. The flexible stripper rubber is made to seal off the pipe and couplings effectively at all times. A ribbed construction enables the rubber to stretch around the couplings without damage and to successfully withstand high well pressures.



National Type AH-2 Stripper Attachment

Upper and lower guides which serve to center the couplings, protect the stripper rubbers, minimizing the danger of tearing. The guides and rubbers are assembled in a unit for conveniently attaching to the body. When used with a gate valve and a ram type preventer on wells equipped with flanged tubing heads, the attachment is a particularly safe and convenient means of running tubing.

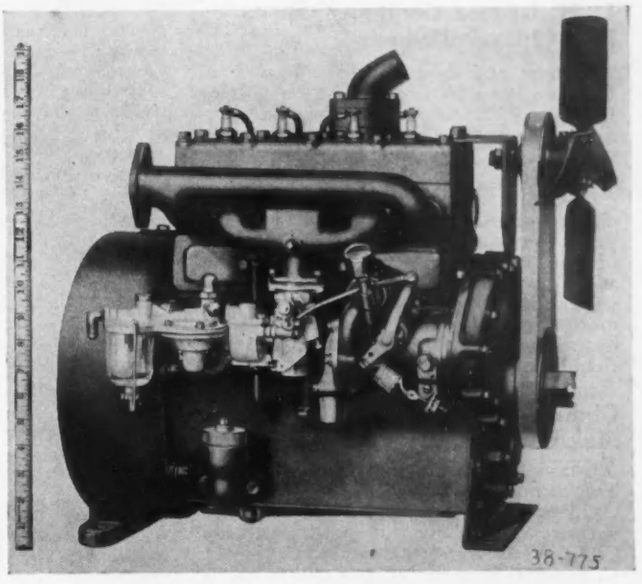
FOUR CYLINDER ENGINE
Waukesha Motor Company

Waukesha Motor Company, Waukesha, Wisconsin, has placed on the market a new four-cylinder engine for industrial use in the low power range. Developing 10-18 horsepower, this unit is ideal for use with light weight vehicles, 5 to 10 kw generators, contractors' and irrigation pumps, or as a starting motor for large engines or power units.

A special design was developed for this unit so that it might incorporate accessibility as well as ruggedness without unnecessary bulk or weight. Crankcase and cylinder blocks are separate castings, both of which have great rigidity. The cylinder block is of molychrome iron which makes it lighter than conventional cast iron cylinders as well as several times more durable. The crankshaft is drop forged and heat treated and mounted on two large ball bearings to reduce friction and prolong life. Connecting rods also drop forged and heat treated are fitted with steel backed, babbit lined precision bushings in the large end and precision bronze bushings in the floating piston pin end.

Oil is forced under pressure from a positive drive valve type pump through a header rifle drilled in the crankcase to the three bronze bushings supporting the camshaft and to the auxiliary shafts and timing gears. Pistons, cylinders, valve tappets and main bearings are oiled by crankcase mist. The unit employs a gear driven centrifugal water pump which assures greater cooling under all conditions of load and temperature.

The centrifugal governor is a major feature of the new



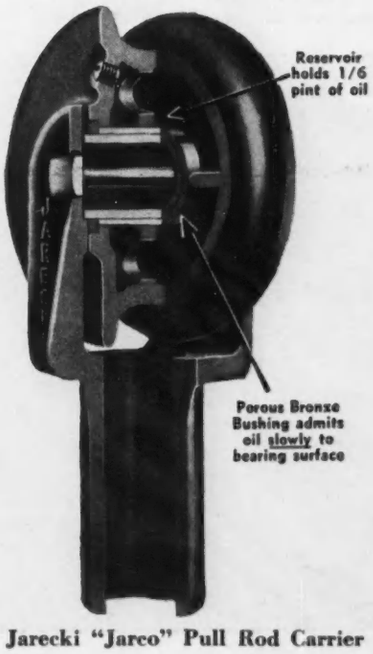
Waukesha "Meteor Four" four cylinder engine

unit, being built into the engine and driven by the timing gears. Entirely enclosed, sealed and lubricated by the engine oiling system, it has big parts and hardened and ground bearings to provide long life and permit close regulation.

Ignition is by distributor or magneto mounted on the side opposite and away from the heat of the manifold. The distributor is driven by a spiral gear integral with the camshaft while the magneto is flange mounted and driven by the timing gears. The starter is on the same side as the ignition and is equipped with a single reduction pinion shaft which meshes with a heat treated and hardened steel ring gear shrunk upon the flywheel.

PULL ROD CARRIER
Jarecki Manufacturing Company

Jarecki Manufacturing Company, Tulsa, Oklahoma, has introduced "Jareco" pull rod carrier, a feature of which is a reservoir which holds sufficient oil to last at least 6 months. This reservoir is located within the wheel, and holds 1/6-pint of light oil. From the reservoir the oil feeds slowly through the porous bronze bushing to the shaft.



Jarecki "Jarco" Pull Rod Carrier

Other features of the equipment include felt retainers which prevent rain and dust from reaching bearing; ground finished steel tubular shaft, resting on bosses cast in frame, and clamped in place by bolt; cast iron wheel of 3¾-inch diameter, which is hollow to provide oil reservoir; and malleable iron frame, ribbed for high strength, with webs on lower section to prevent twisting in 2-inch rod line post.

This Week with the Industry's EQUIPMENT SUPPLIERS

L. H. Gilmer Company Opens New Chicago Branch

A new and direct factory branch in Chicago is announced by L. H. Gilmer Company, Tacony, Philadelphia. Removed from 665 W. Washington Boulevard, the new address is 351-363 East Ohio Street.

The new branch management is in charge of A. B. MacFarland, for five years assistant to the sales manager of the company. He is assisted, in addition to an experienced office and warehouse group, by a factory-trained mechanical engineer and a sales staff experienced in the power transmission field.

Chain Belt Company Makes Personnel Changes

Chain Belt Company of Milwaukee has announced election of Fred V. Gardner as acting treasurer to fill the vacancy created by the recent death of C. L. Pfeifer, and the election of John T. Brown, vice-president to the board of directors. G. M. Dyke, assistant treasurer, was re-elected and A. F. Kessler, chief accountant, was elected an assistant treasurer.

Gardner, who has been connected with the company since early in the year in a consulting capacity, was formerly associated with General Electric Company at Schenectady, as supervisor of budgets, where he received the Foffin Foundation Award given yearly to the employe who performs the most outstanding service for the furtherance of the industry. He is a graduate of the University of Missouri and the Harvard Business School.

Brown has been associated with Chain Belt Company since 1924, first as a student apprentice and then successfully as production manager, works manager and since 1936 vice-president. He is a graduate of Yale University.

Dyke has been connected with the company since 1923, and shortly thereafter was made vice-president of the then new acquired Stearns Conveyor Company at Cleveland. When the Cleveland operations were merged with the Milwaukee operations in 1933, Dyke returned to Milwaukee to become assistant treasurer.

Kessler joined the organization in 1923 and has been chief accountant for the last 10 years.

Landis Machine Company Sales Manager Goes to Europe

C. N. Kirkpatrick, secretary and sales manager of Landis Machine Company, Inc., Waynesboro, Pennsylvania, manufacturers of thread cutting equipment, sailed October 8 to visit the company's representatives in England and on the Continent.

Increase In International Motor Truck and Tractor Production

A program of increased tractor and motor truck production, which, over a period of several weeks, will return several thousand men to jobs at tractor and motor truck plants in Chicago, Milwaukee, Fort Wayne, Indiana; Springfield, Ohio; and Rock Island, Illinois, was recently announced by International Harvester Company. The company's increased manufacturing activity is scheduled to begin at these plants this week.

Estimates are that about 6500 men will return to work at the company's automotive plants over the next several weeks. Workers will be returned to their jobs according to seniority of service agreements with employes, in effect at each of the three plants.

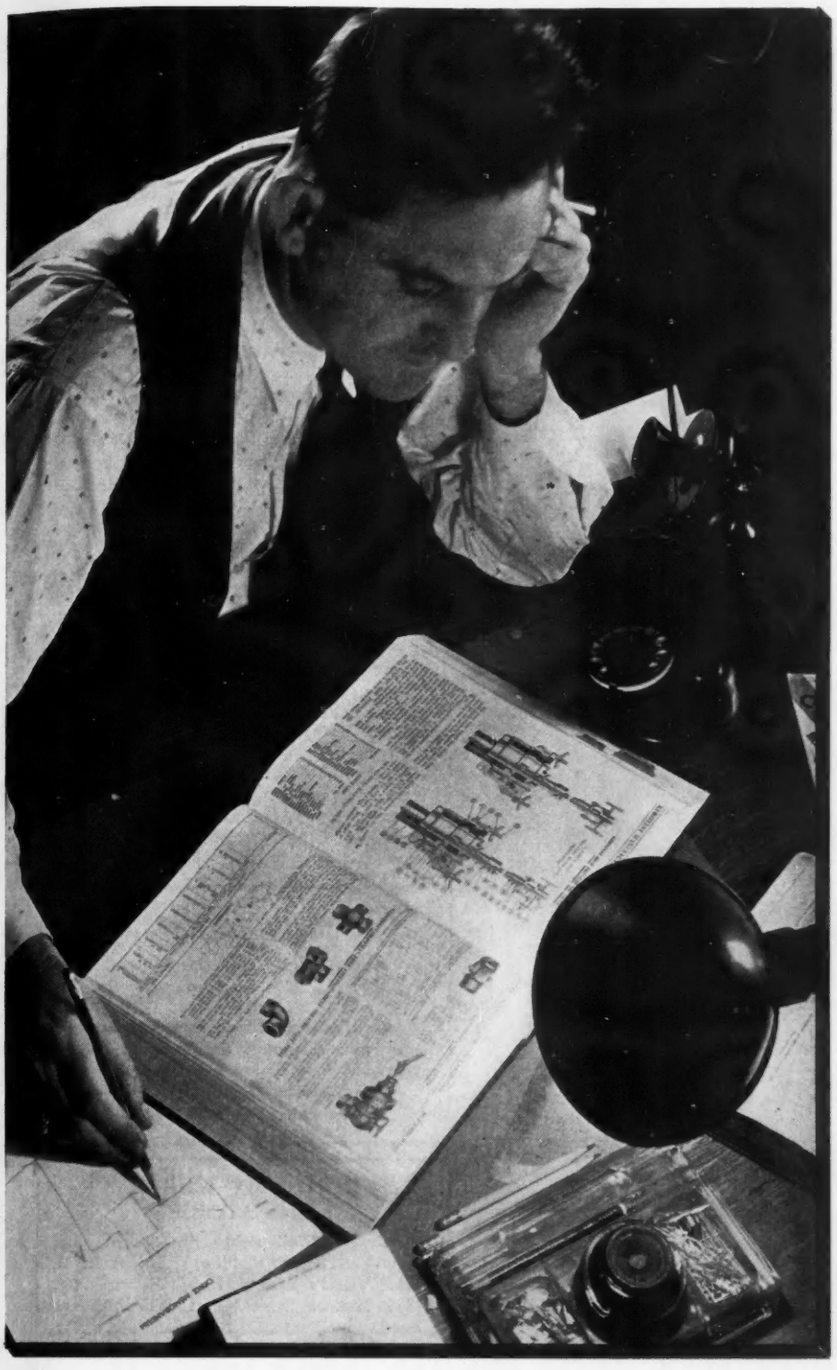
Employment will also be stimulated in the company's West Pullman plant in Chicago, which makes auxiliary parts, as a result of the re-employment in the automotive plants.

The company's increased truck and tractor program has been made possible as a result of improvement in tractor and motor truck sales in recent weeks, which have reduced the large inventories which caused the company to cut down operations at its plants very materially in July and August.

Sales estimates have now been made for the autumn, winter, and spring months, Fowler McCormick, second vice-president of the company, in charge of manufacturing, said. Estimates have been made of both domestic and foreign sales in order to develop as large a manufacturing program as possible for the winter months.

Company officials expressed the be-

Above is Gordon G. Guiberson, sales manager, The Guiberson Corporation, Dallas, Texas, after a nice days catch of rainbow and brook trout. The lower picture is W. R. Guiberson, president of W. R. Guiberson Company, Los Angeles, California, in the act of landing a three-pound rainbow trout from Snake River, 40 miles from Yellowstone National Park in Idaho.



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lief that their future sales estimates are sufficiently conservative to warrant continuance of the enlarged manufacturing schedule well into the spring of 1939.

Langley Manufacturers Agent In South America

About October 20, 1938, W. C. Langley will return to Trinidad to represent American Iron & Machine Works Company, Byron Jackson Company, Elliott Core Drilling Company, Lane-Wells Company, and Security Engineering Company, Inc., in Trinidad, Venezuela and Colombia.

W. C. LANGLEY

Langley, for the past ten years, has been connected with the Standard Oil Company of Venezuela, on standardization and materials work, both in Trinidad and Venezuela. Prior to that time he was for three years engaged in actual field work in Southwest Africa for the Sinclair interests.

After November 1, 1938, Langley will make his headquarters in Port of Spain, Trinidad.

"Jimmy" Kone, Jr., Joins Manning, Maxwell & Moore

"Jimmy" Kone, Jr., who for several years has been associated with Phillips Petroleum Company and Sunray Oil Company, has recently joined the sales staff of Manning, Maxwell & Moore, Inc., of Bridgeport, Connecticut.

He served in various capacities as chemist, as plant still-man in the natural gasoline department of Sunray Oil Company, and as material engineer with Phillips Petroleum Company. As a graduate in chemistry with a B. S. degree from the Austin College in Sherman, Texas, he is well qualified to represent the products of the various divisions of Manning, Maxwell & Moore, Inc., which include Consolidated Safety Valves, Hancock Valves, Ashcroft American Gauges and American Precision Instruments.

At the moment his activities in the oil fields are confined more or less to instruments, but will shortly cover all branches of products in the Oil Industry.

Weiss Chain & Transmission Company Has Complete Stock

A complete warehouse stock of Whitney chains is carried at 224 East Third street in Tulsa, Oklahoma, by Weiss Chain & Transmission Company. This distributor in Oklahoma also represents Quaker City Rubber Company of Philadelphia, manufacturers of a complete line of mechanical rubber goods.

Self Cleaning Bearings Marked On Westinghouse Motors

Because so many electrical maintenance men periodically dismantle motor ball bearings to clean out old grease, a red tag is now attached to Westinghouse grease lubricated ball bearing motors stating that this practice is unnecessary. The motor bearings are self-cleaning, being provided with an overflow sump into which the used grease is automatically deposited.

On the tag, a cross section of a bearing shows how fresh grease forces the old into the sump. Excess or used grease is easily removed through an opening equipped with removable plug. The overflow sump also provides a pressure relief which prevents overgreasing when the simple instructions accompanying the motor are followed.

This information had been contained in the instruction booklet accompanying each motor, but a survey of installations has shown that the older practice is still prevalent.

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Squeaks from the Bull Wheel

The Biggest Head

A Sunday-school teacher had been telling her class of boys about the crowns of glory they might wear in the hereafter.

"Now, boys, can you tell me who will get the biggest crown?"

"Yes, mam, the one with the biggest head."

Give It Time

"Why don't you read this book of world history from 5000 B.C. to 1937 A. D.?"

"Aw, I looked at it and I don't like the way it ends."

Unnatural History

"Can anyone tell me what causes trees to become petrified?"

"The wind makes them rock."

Right

"So you want to try that proofreader job, eh?"

"Yes, sir."

"And do you understand all the responsibility attached to it?"

"Yes, sir, when you make a mistake, I take all the blame."

New Job

"I'se got a new job, so I cain't do yo' washin' no mo'."

"What is it, Mandy?"

"My new job is dat I cain't work. I'se on relief."

Compliment

Stout lady (at a street crossing): "Officer could you see me across the street?"

Officer (inclined to flattery): "Why ma'm, I could see you a mile off."

Slight Error

"John dear, your office is on Broad Street, isn't it?"

"Yes, why?"

"That's funny. I told that to Daddy and he said he'd been looking you up in Bradstreet."

English?

American visitor (in Paris): "Parley voo Angley, mademoiselle?"

French Girl: "Yes; a vairy leetle."

American Visitor: "Good work! Say, could you put me wise where I could line up against some good eats in this burg?"

All Wet

The teacher kept George after class to punish him for coming late so often. "Before you can leave, George, I want you to write a 500-word composition."

George picked up his pen and frowned as he groped for an idea. The shouts of his friends playing ball outside didn't help any. Suddenly he began to write furiously, "Yesterday the rain beat on my window incessantly and monotonously and I couldn't help but listen. It went drip, drip, drip, drip, drip, drip, drip, drip, and he repeated the word "drip" 481 times.

Mm-m!

It was during the impaneling of a jury that the following colloquy occurred:

"You are a property holder?"

"Yes, your Honor."

"Married or single?"

"I have been married five years, your Honor."

"Have you formed or expressed an opinion?"

"Not in five years, your Honor."

A Little Extra Change

The general merchant, who did a bit of tailoring in his spare time, was called on by a friend, who said, "I've been putting on weight and this dress suit is rather too tight for me. Could you manage to let it out a bit?"

"I've never done such a thing," was the reply, "but I'll see what I can do."

A week later the owner of the suit telephoned to see how his friend was getting on with it.

"Better than I expected," said the friend, "I've let it out to four men already."

Out of Tune

Two elderly men at a club were discussing the table manners of a new member.

"Well, what do you think of him?" asked one.

"Very remarkable," replied the other, thoughtfully, "I've heard soup gargled and syphoned, but, upon my word, that's the first time I've ever known it to be yodelled."

Eskimo Love

"What would you say if I told you I have come a thousand miles through ice and snow with my dog team just to tell you I love you?"

"I'd say that was a lot of mush."

Nothin' But

"Cheer up, Mandy. There's no use in worrying."

"How come dere's no use in worryin'? When de good Lawd send me tribulation He 'spect me to tribulate, ain't He?"

How Many Learn It?

"Nurse, what is the most difficult thing for a young mother to learn?"

"That other people have perfect children, too."

Modesty Insists

Mother: "I object to these one-piece bathing suits."

Daughter: "Oh, mother, I think I ought to wear something."

Raw Meat

A cowpuncher ordered a steak at a restaurant. The waiter brought it in—rare—very rare. The puncher looked at it and demanded that it be returned to the kitchen and cooked.

"'Tis cooked," snapped the waiter.

"Cooked hell," returned the puncher, "I've seen cows hurt worse than that and get well."

A Job Well Done

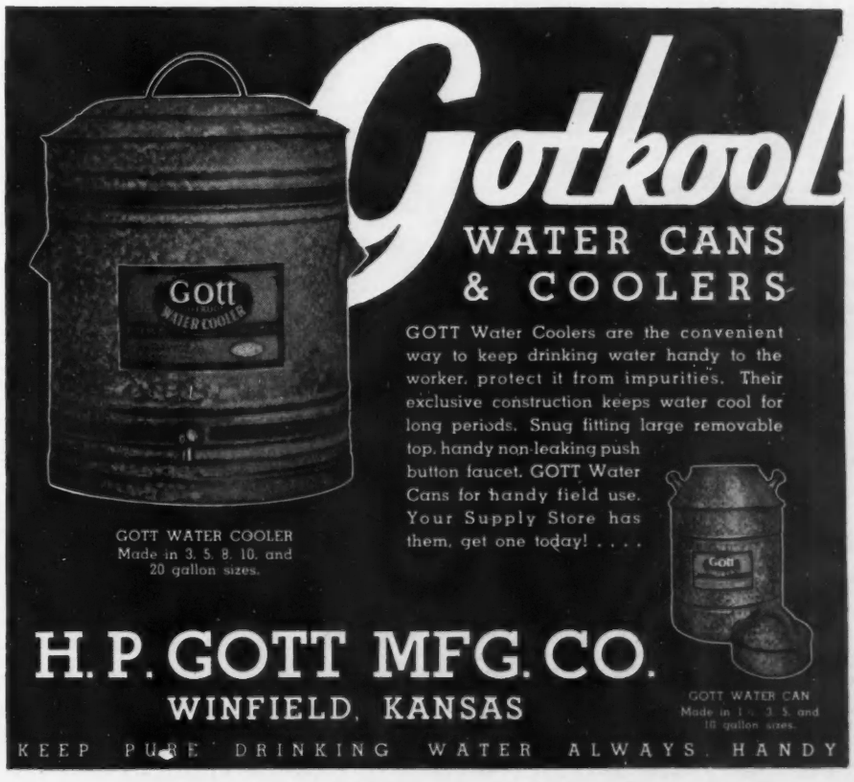
The film magnate wanted one of his stars to accept a reduction in salary. So he said to his junior partner: "You tackle him, Paul. You're better educated than what I am. You can give him a better line of talk than me."

Paul went off on his disagreeable job. When he came back, the magnate asked anxiously:

"Well, how about it?"

"He acquiesced," said Paul.

"Did he? The dirty dog."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